



WORKBOOKS



Science

Meets Common
Core standards

Makes learning
easy and fun

Builds and
boosts key skills



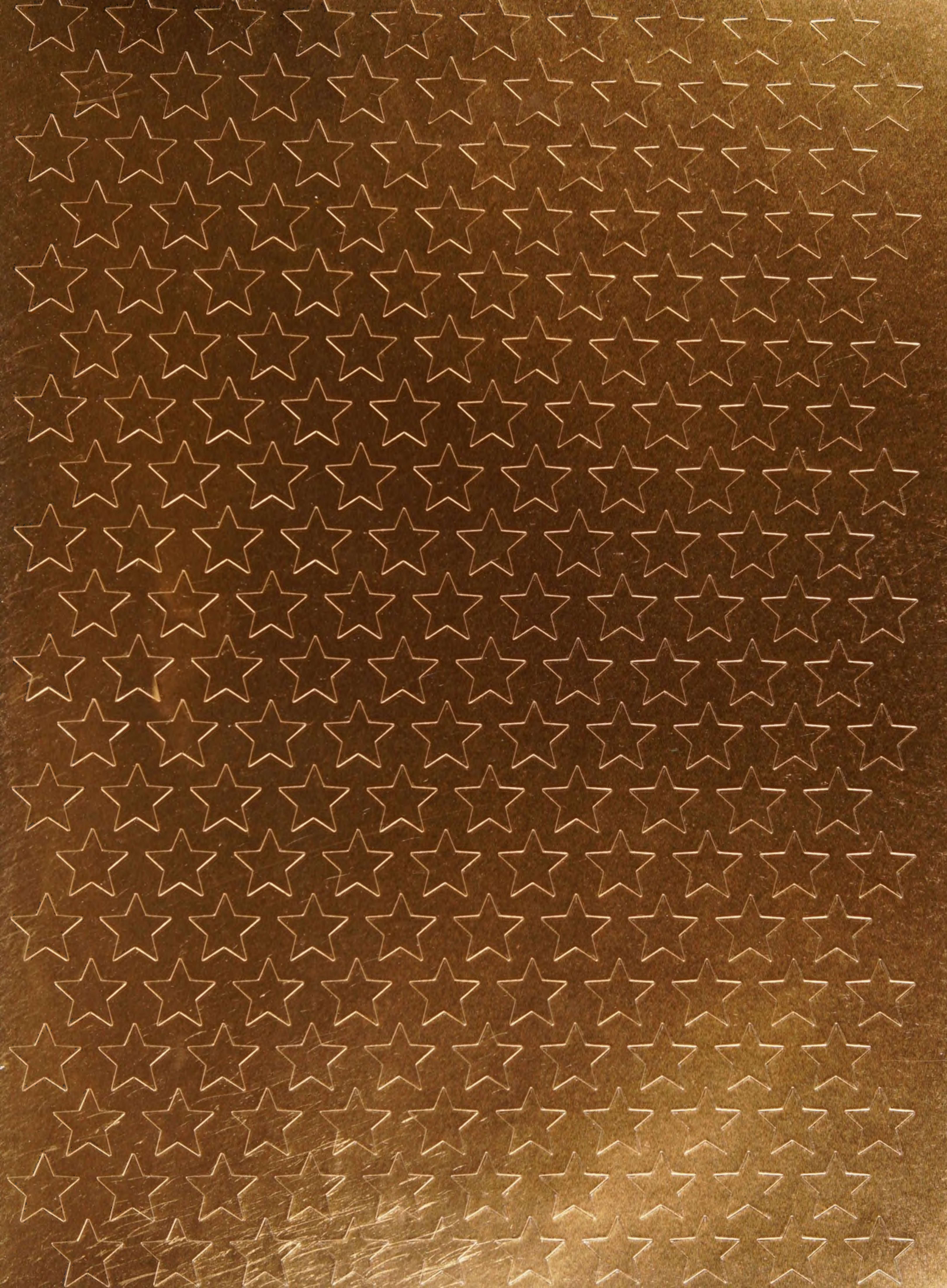
200

GOLD
REWARD
STARS

Science

Learn and Explore







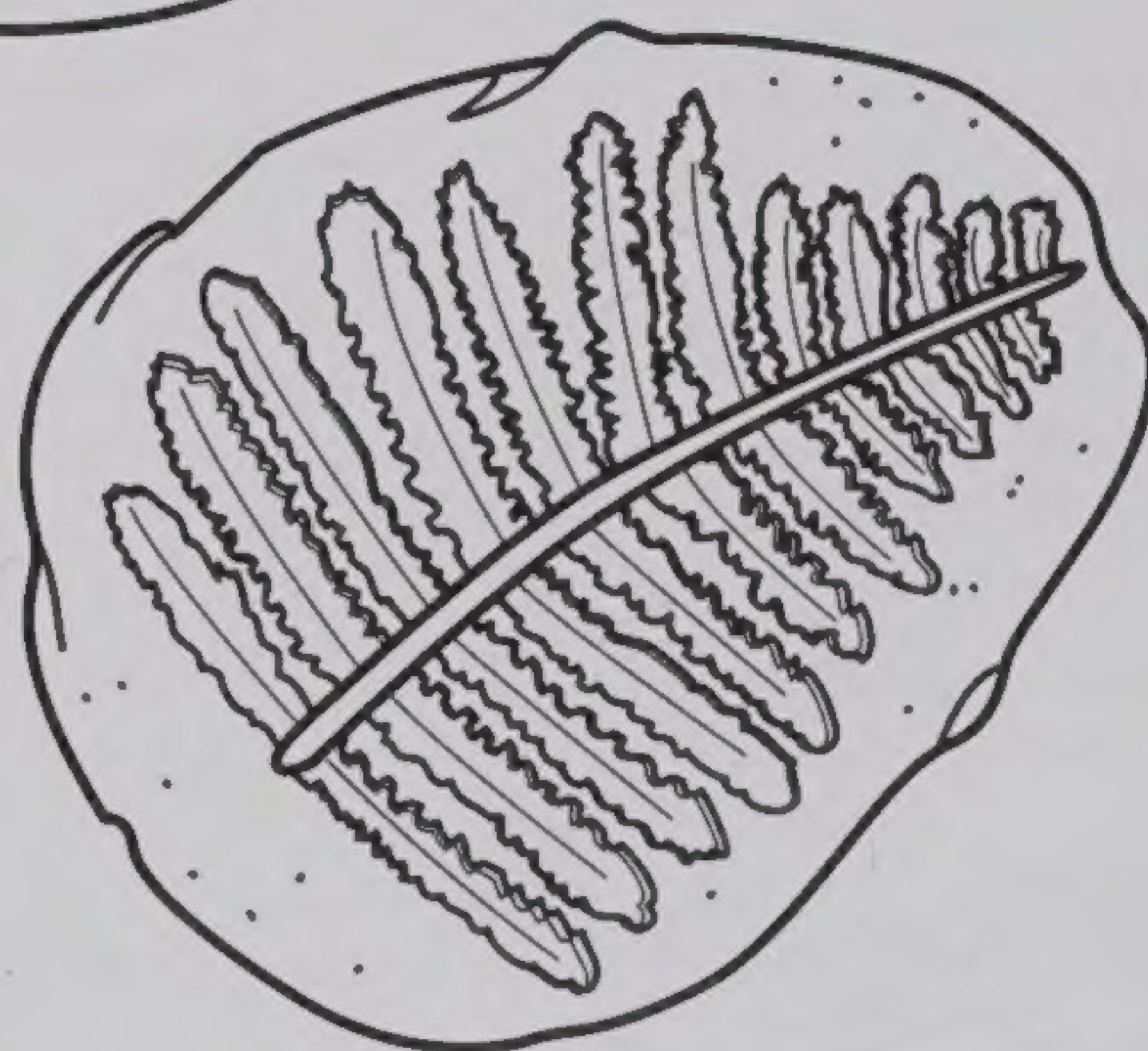
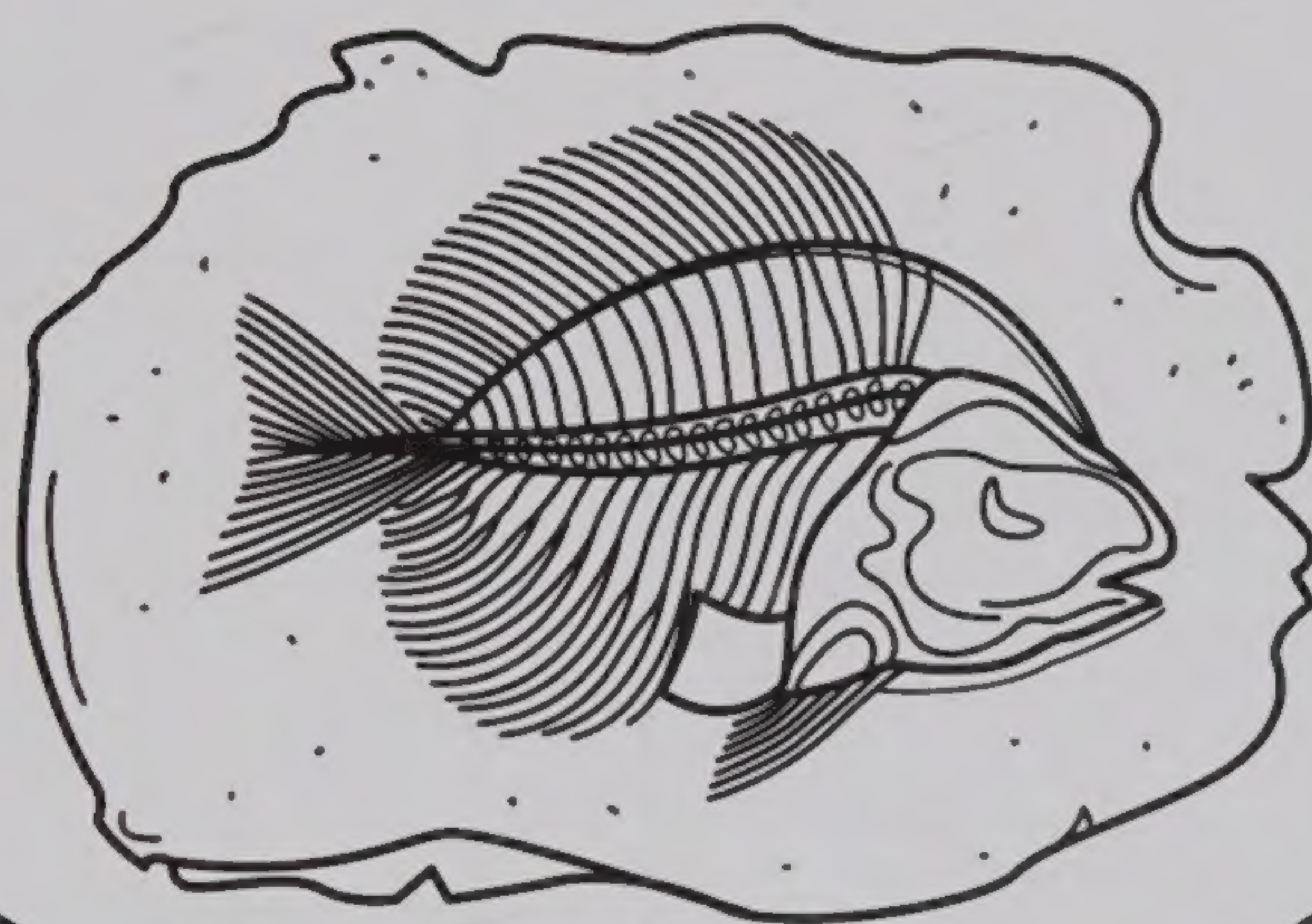
WORKBOOKS



Science

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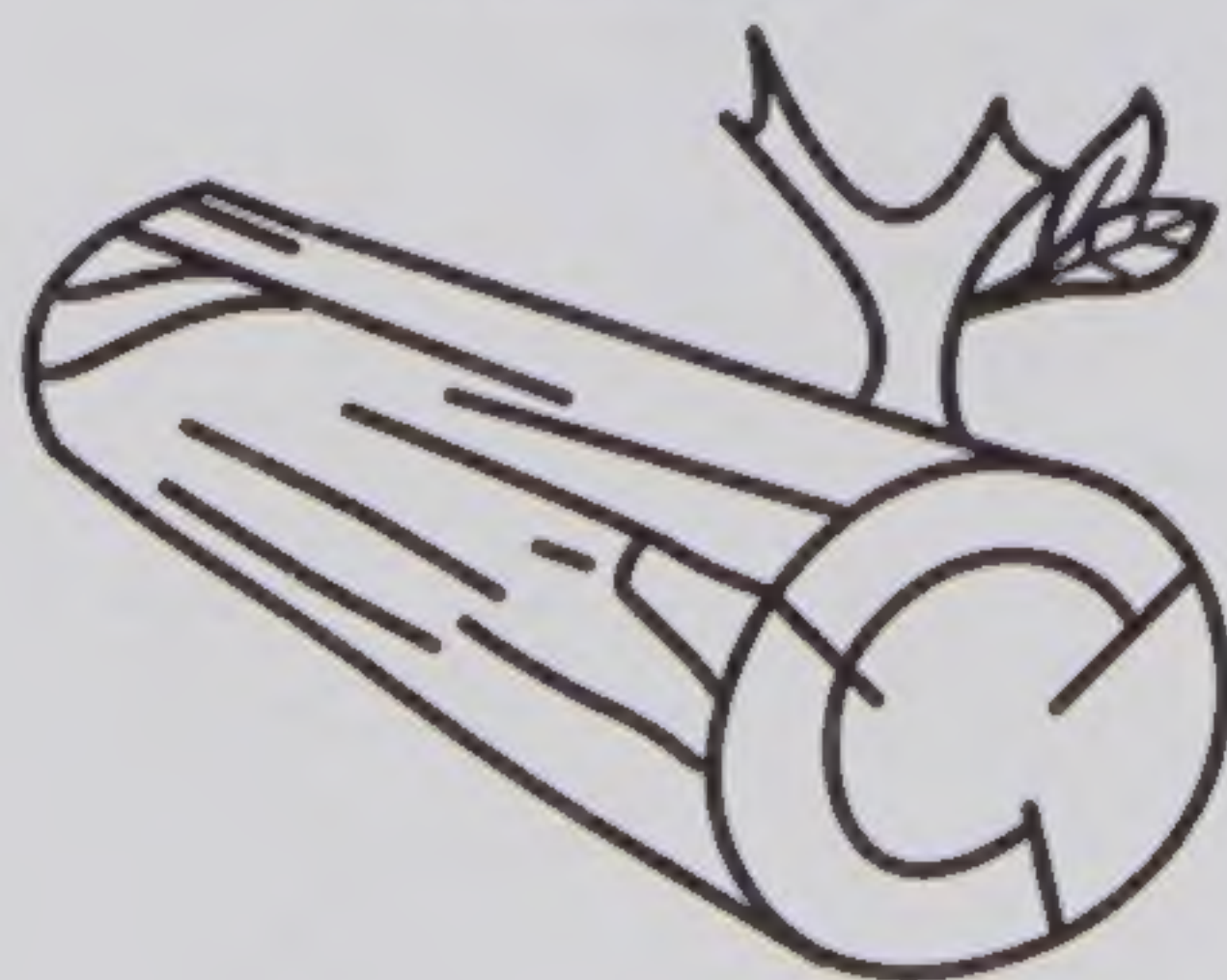
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Scientists

FACTS

Scientists study different parts of nature and the universe.

Use the words in the box to complete the sentences.

Astronomer

Biologist

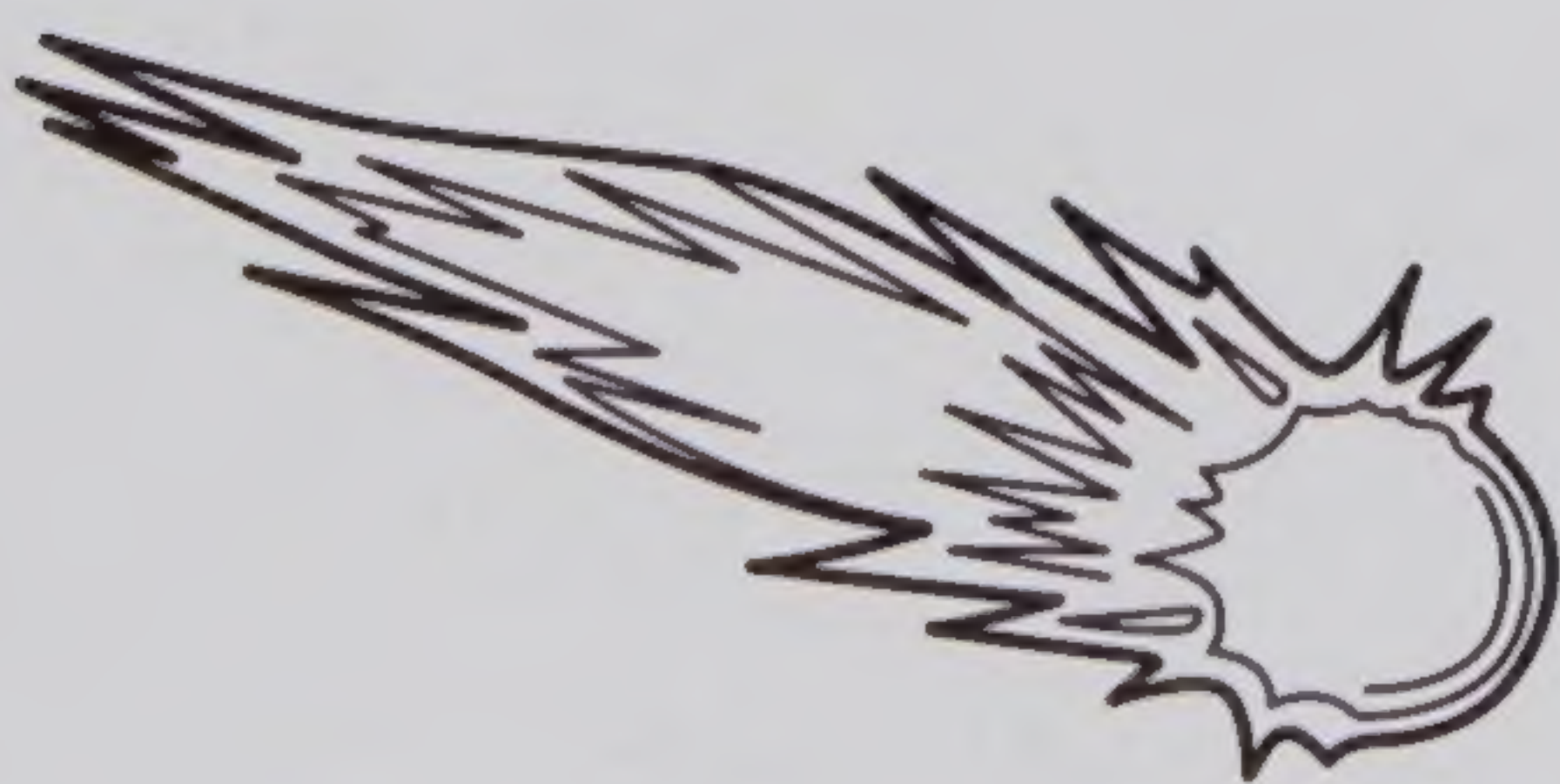


A scientist who studies living things is a

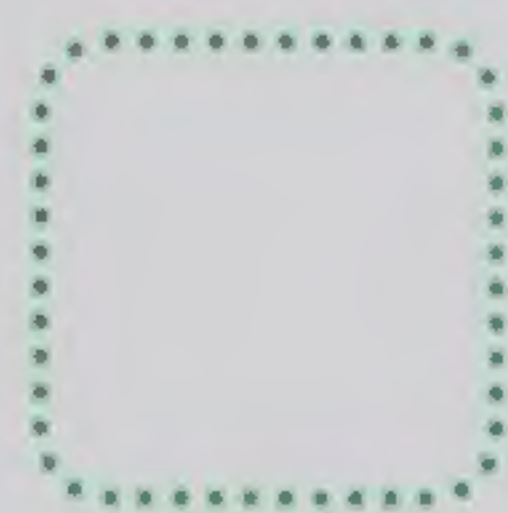


A scientist who studies the stars is an

Write **A** near the objects that interest an astronomer and **B** near the ones that interest a biologist.



Comet



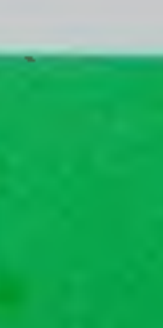
Starfish



Plant



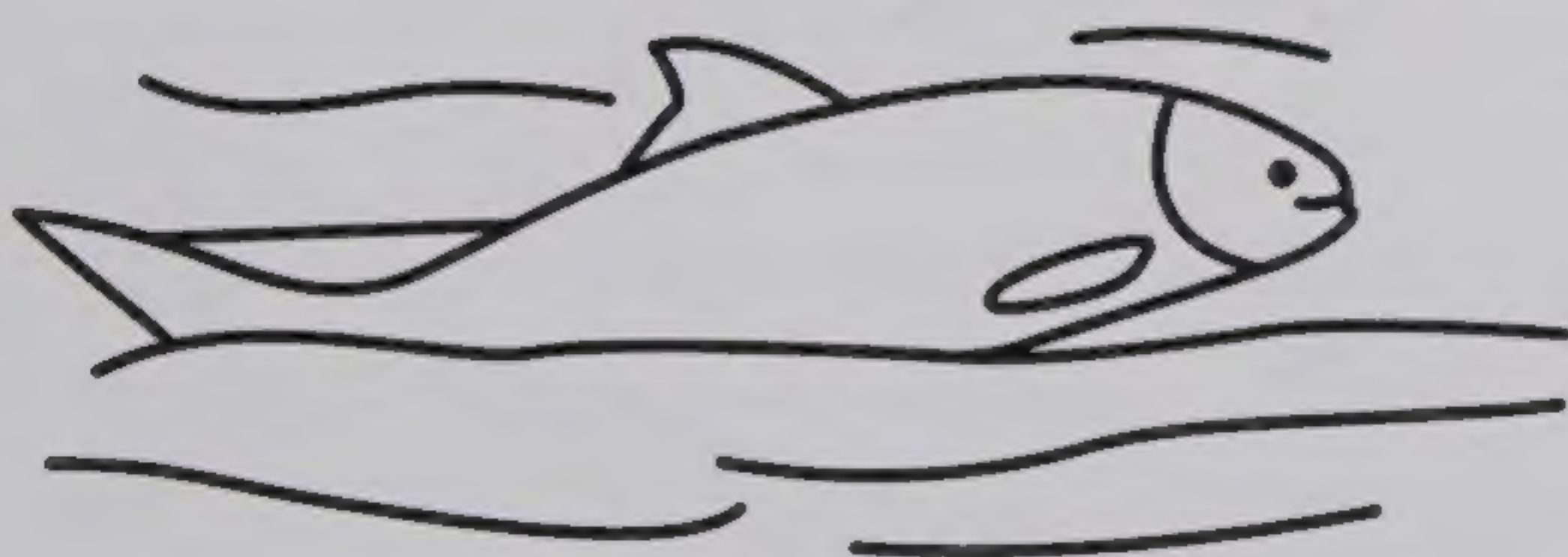
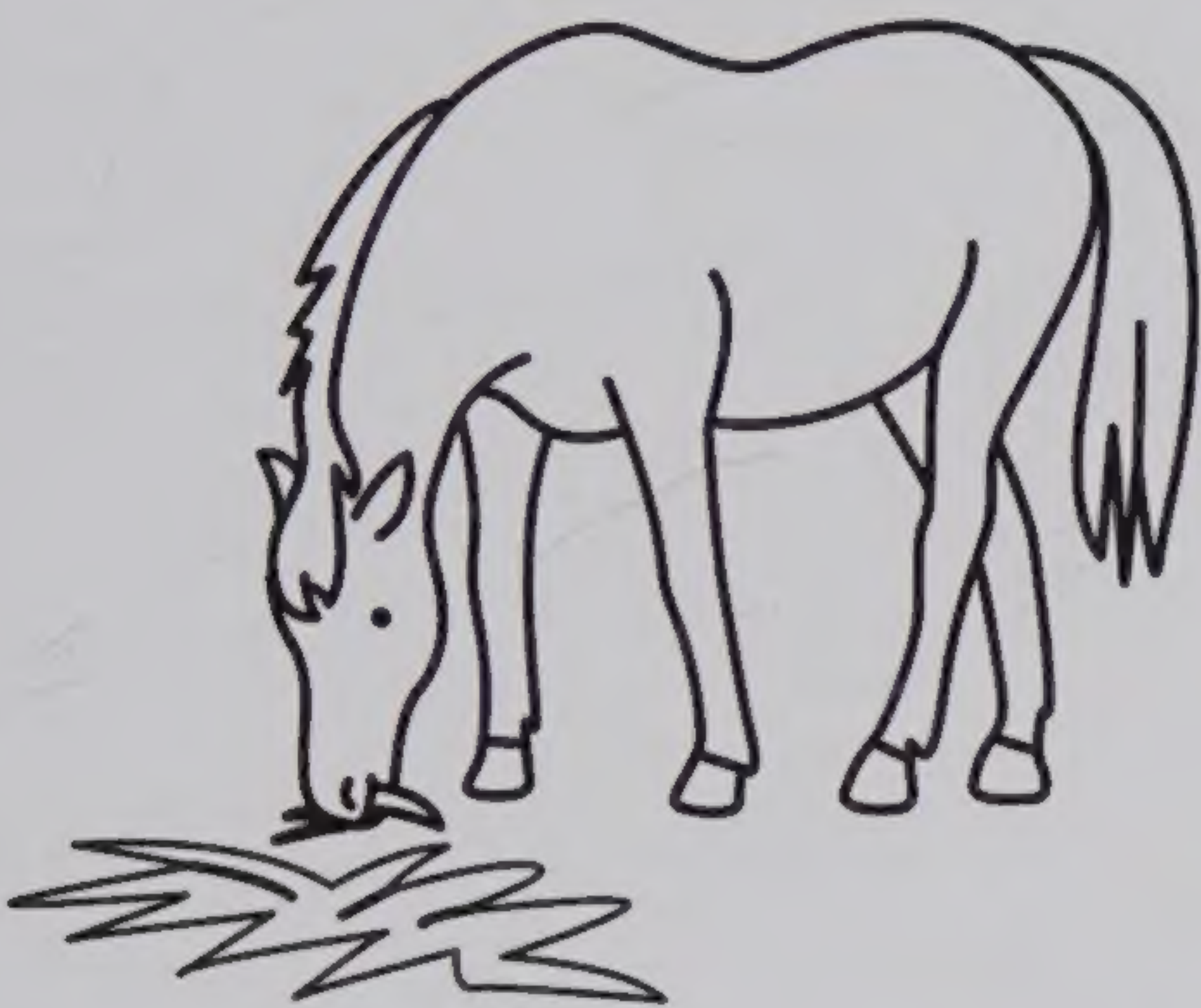
Moon





All living things need food, water, and shelter to survive.

Look at the animals below. Draw a line from each animal to the shelter it lives in.



What kind of food does each animal eat?

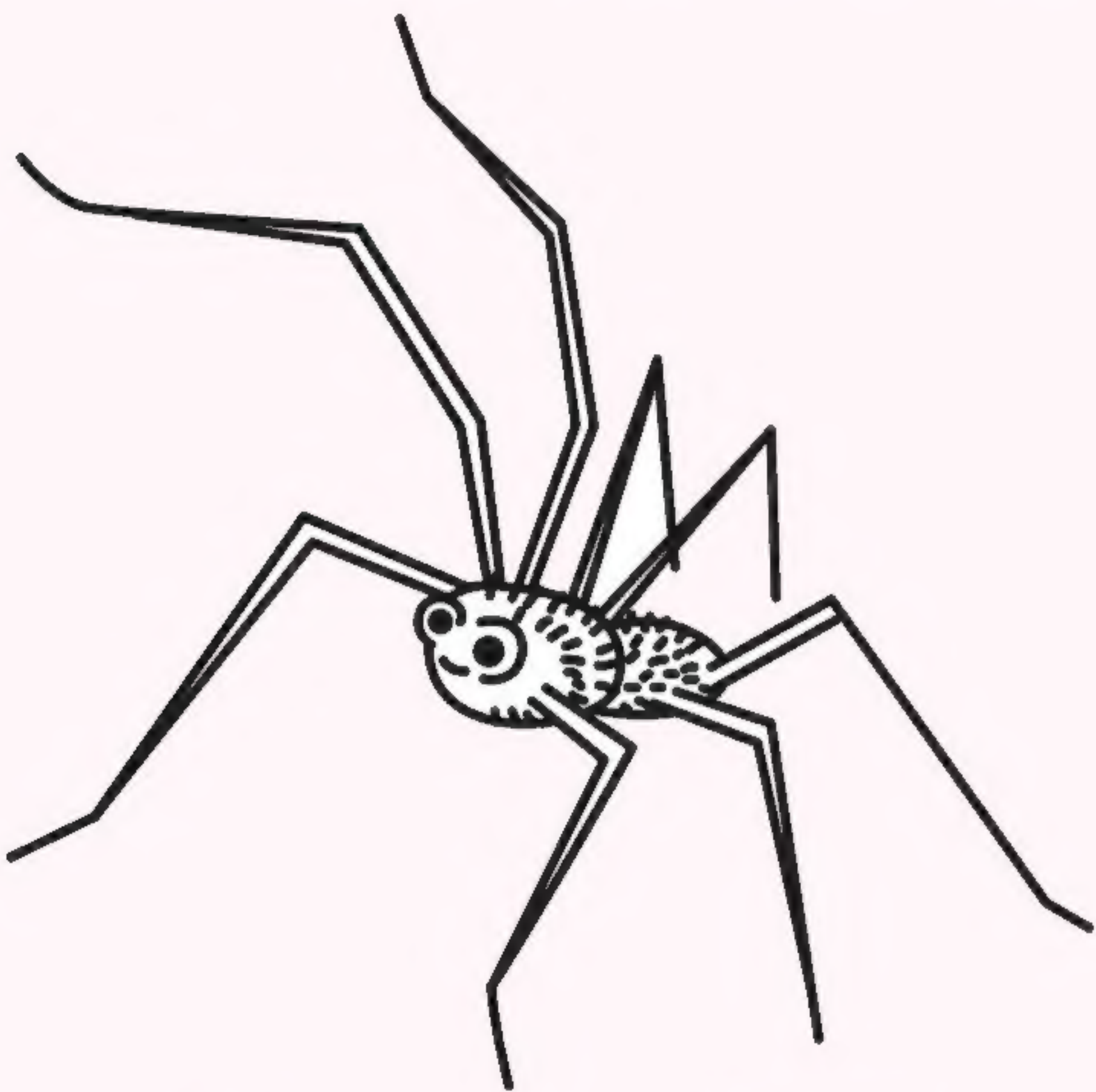


Animal Movement

FACTS

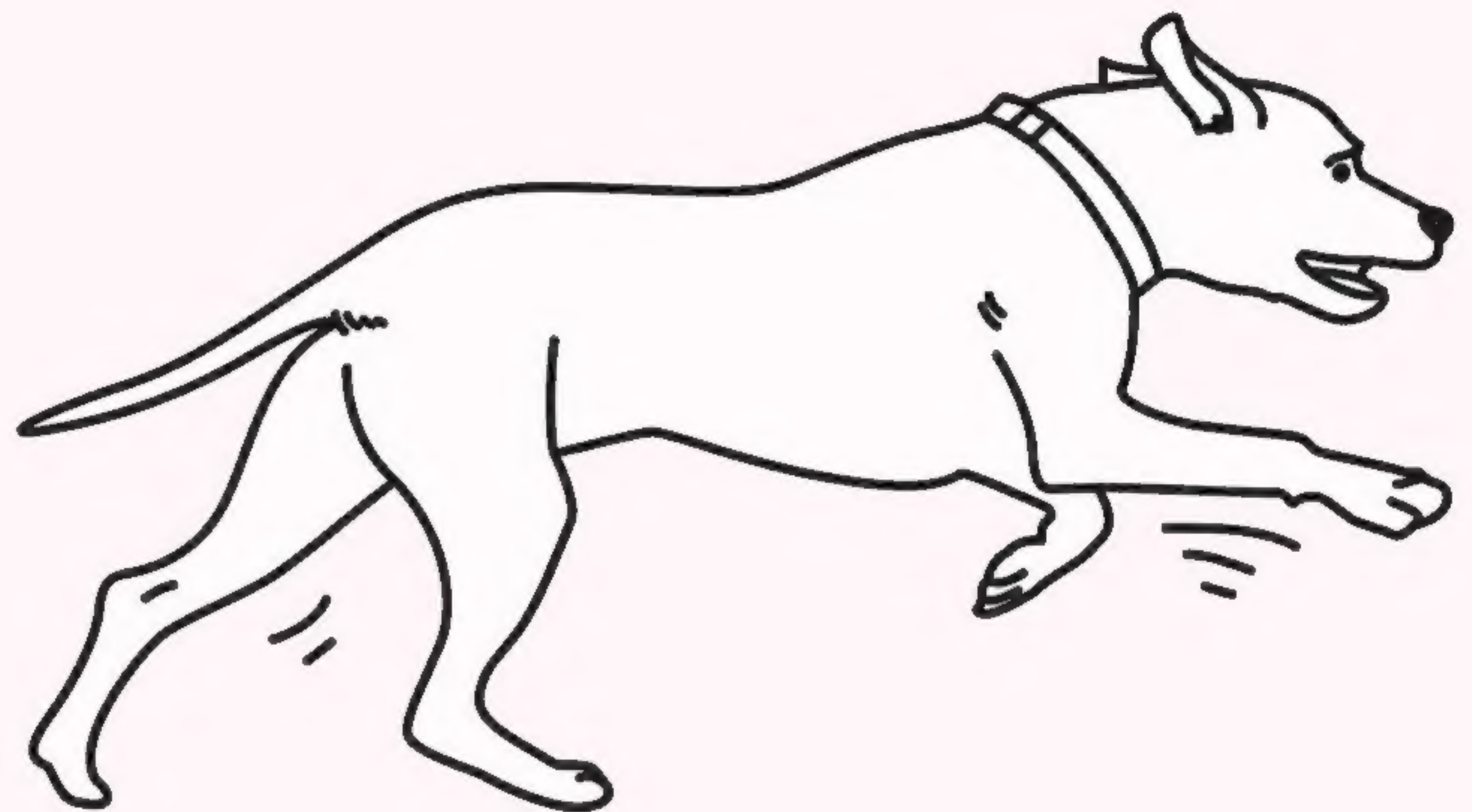
Animals move from place to place to find food, seek shelter, and escape from danger. Some animals, such as rabbits, move very quickly, while others, such as snails, move slowly. Some animals run, while others hop, crawl, swim, or fly.

Look at the words beneath each picture below. Circle the word that describes how the animal in the picture is moving.



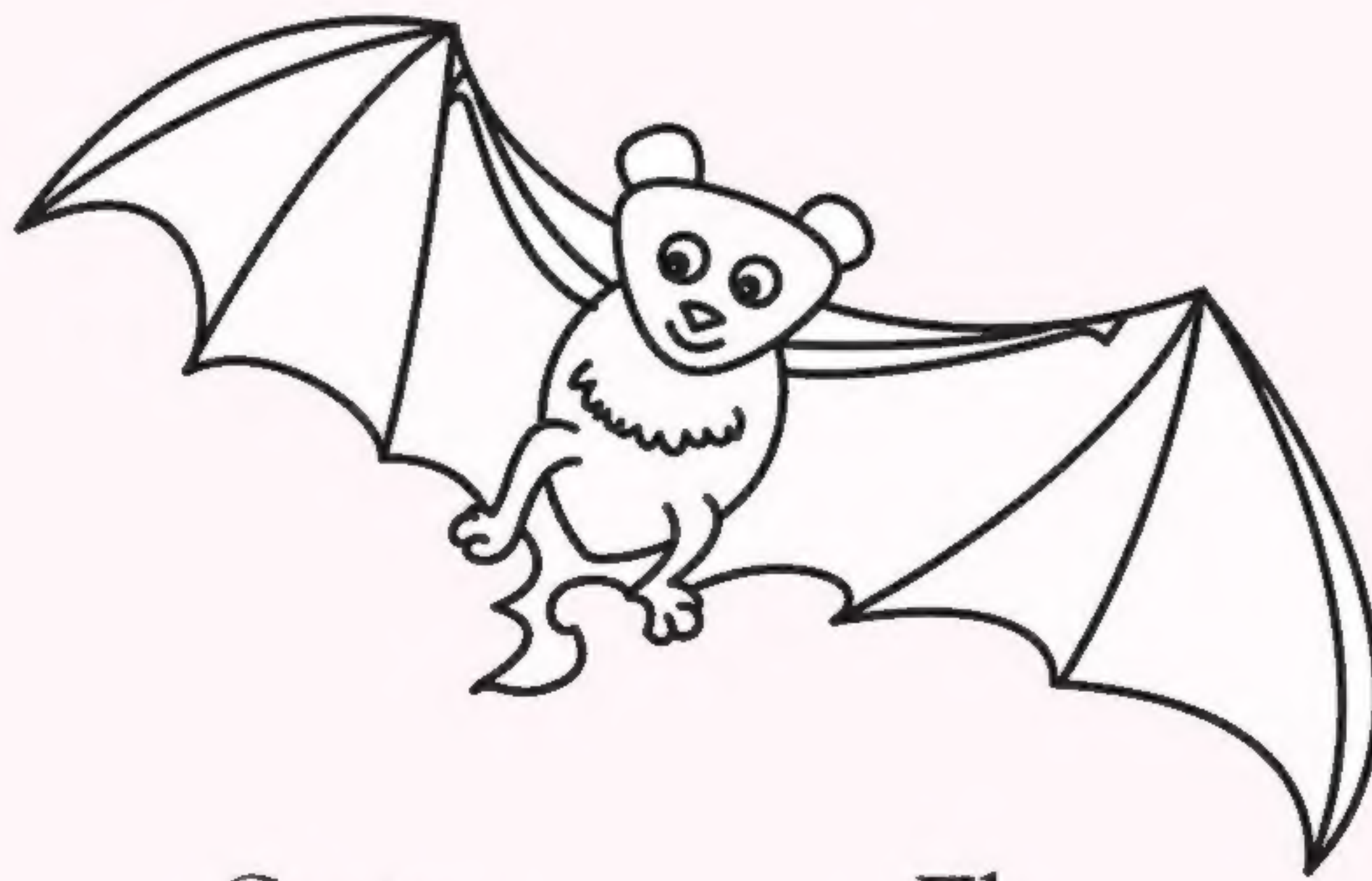
Fly

Crawl



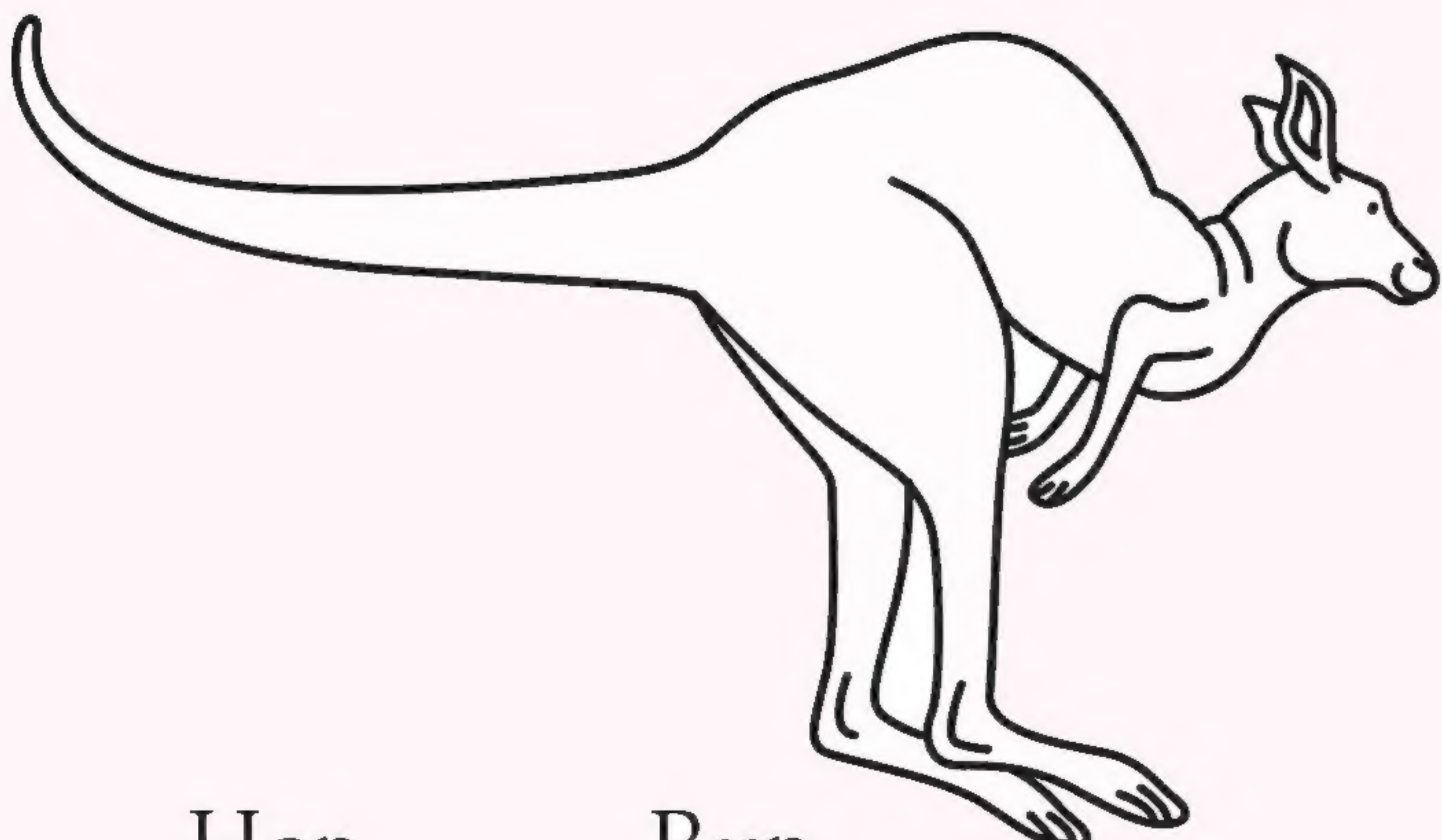
Fly

Run



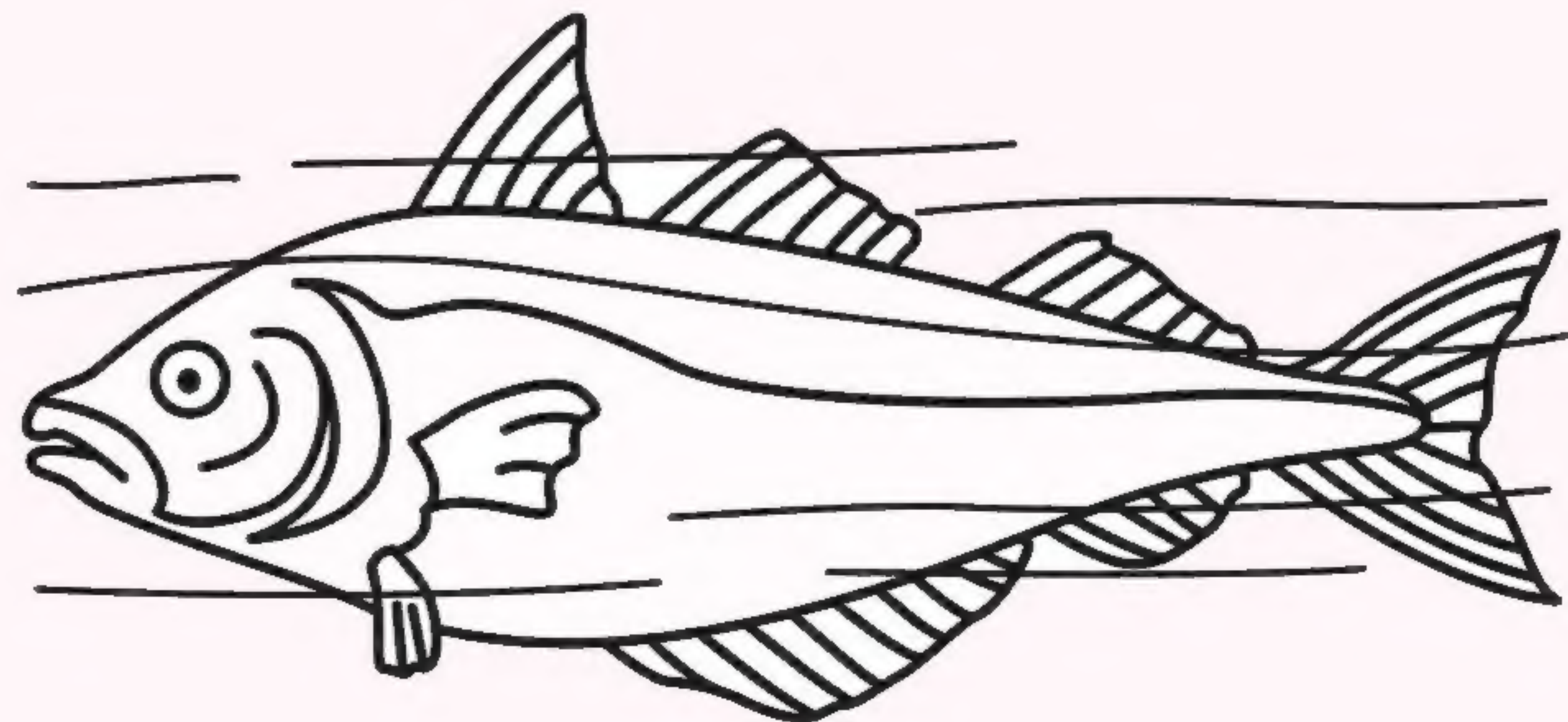
Swim

Fly



Hop

Run



Fly

Swim



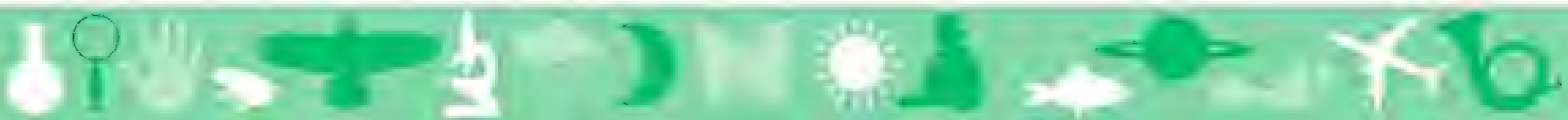


Plants make their own food inside their leaves by using sunlight, air, and water from the soil. They use this food to grow and make seeds that can grow into new plants.

Read the sentences below. They tell you many facts about an oak tree. Put a check (✓) in the box next to the sentences that are true.



- ☐ The tree makes food inside its leaves.
- ☐ Dogs nest in the branches of the tree.
- ☐ The tree takes in water from the soil through its roots.
- ☐ The tree needs sunlight to make food.
- ☐ The oak tree does not produce any seeds.
- ☐ The seeds an oak tree produces are called acorns.





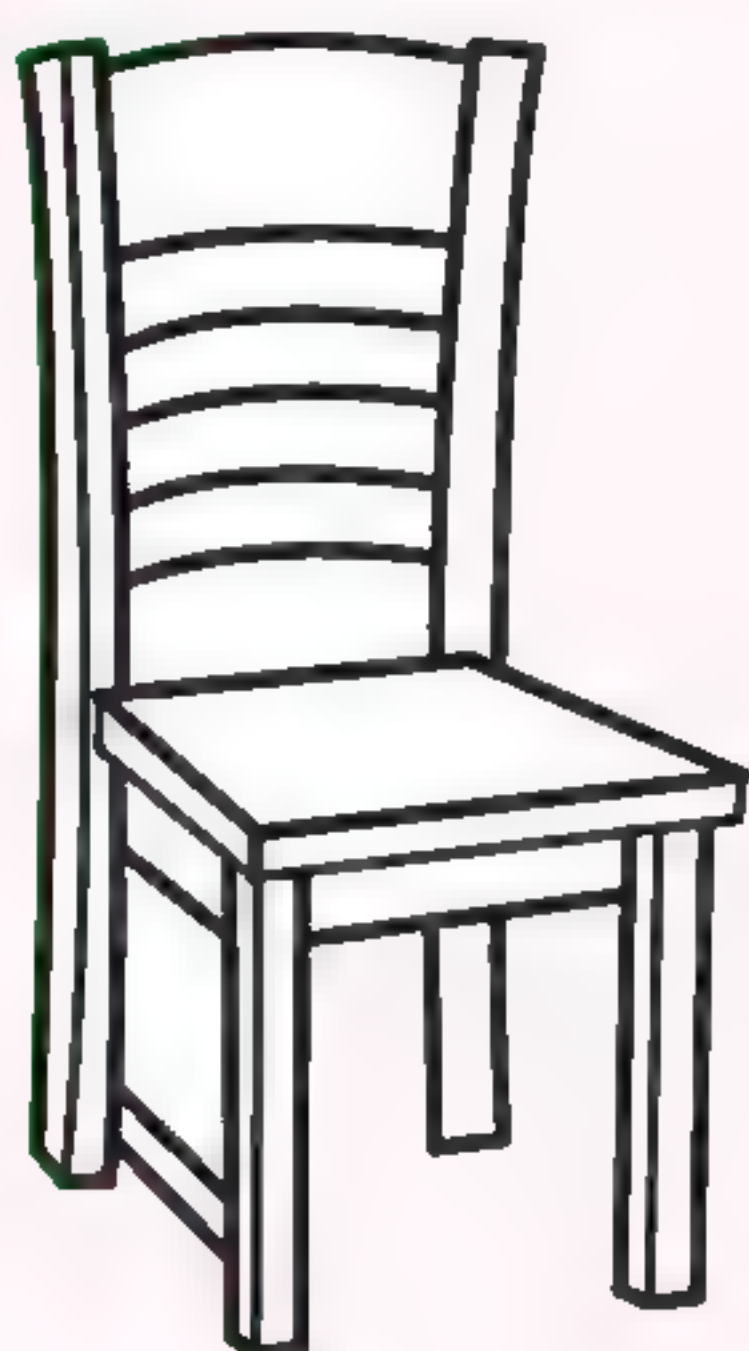
The Muscles

FACTS

Muscles are stretchy tissues that are attached to the bones. When muscles work, they pull on the bones making them move.

TEST

What You Need:



Chair



What To Do:

1. Sit on the chair. Put both hands around the top of one of your legs.
2. Flex your knee, lifting up the lower part of your leg.
3. Draw an arrow on the picture below, pointing to where you can feel the muscles move and change shape as your leg moves.
4. Stand up. Hold one arm out straight to the side and touch your upper arm.
5. Flex your elbow, lifting up your lower arm.
6. Draw an arrow on the picture below, pointing to where the muscles move and change shape as your lower arm moves.

RESULT



What do you notice about the way your muscles change as you raise your lower leg or arm?



Bones support and protect the body.

Read the words in the box. Use them to fill in the blanks around the skeleton below.

Elbow

Knee

Skull

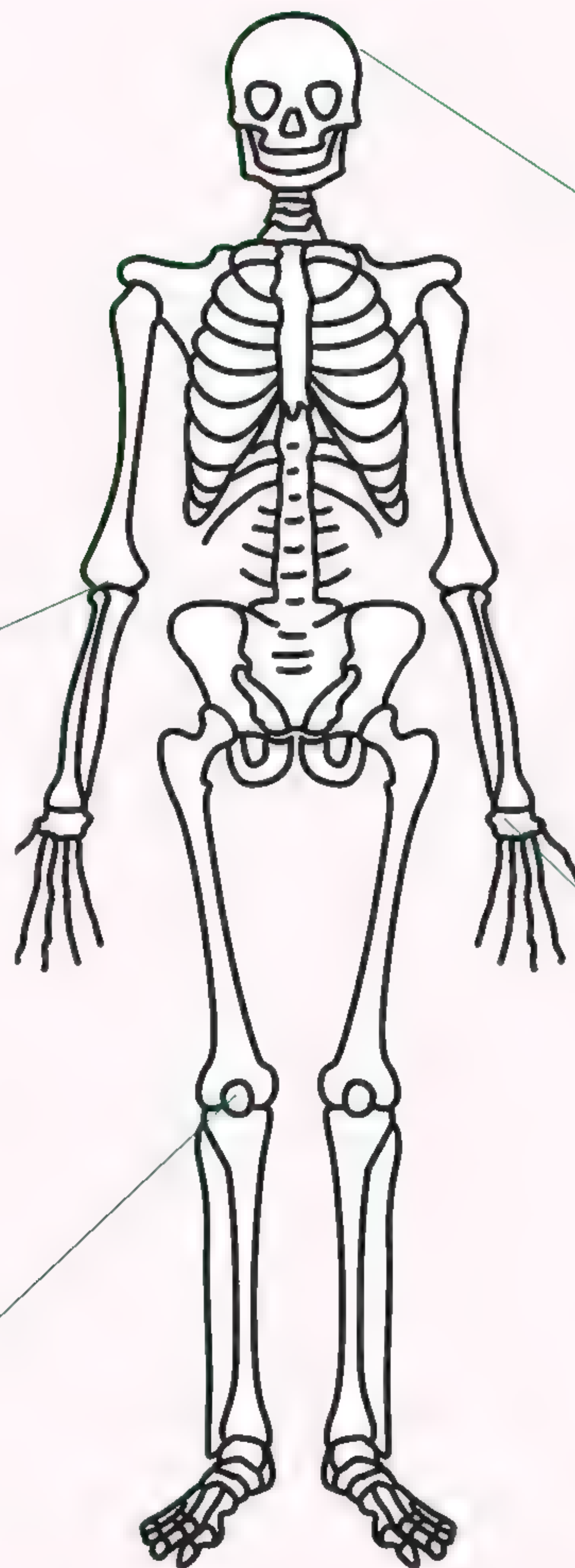
Wrist

The is where the bones of the upper arm and the lower arm meet.

The is the bone in the head that protects the brain.

The is where the bones of the upper leg and the lower leg meet.

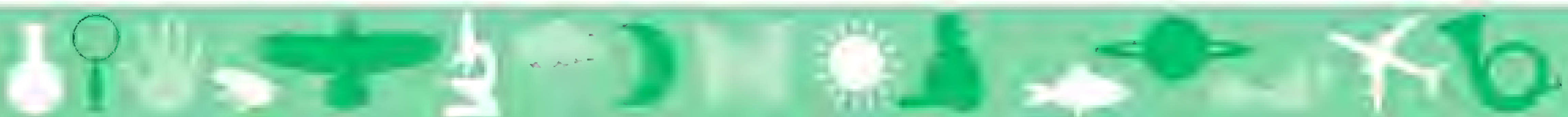
The is the part of the body where the bones of the lower arm and the hand meet.



Touch your head. Can you feel your skull? Circle the word that describes how it feels.

Soft

Hard





The Organs

FACTS

An organ is a part of the body that does a special job to help keep you alive. The heart, lungs, stomach, and brain are major organs. The heart pumps blood around the body. The stomach digests food. The lungs absorb oxygen from the air you breathe. The brain is the body's control center.

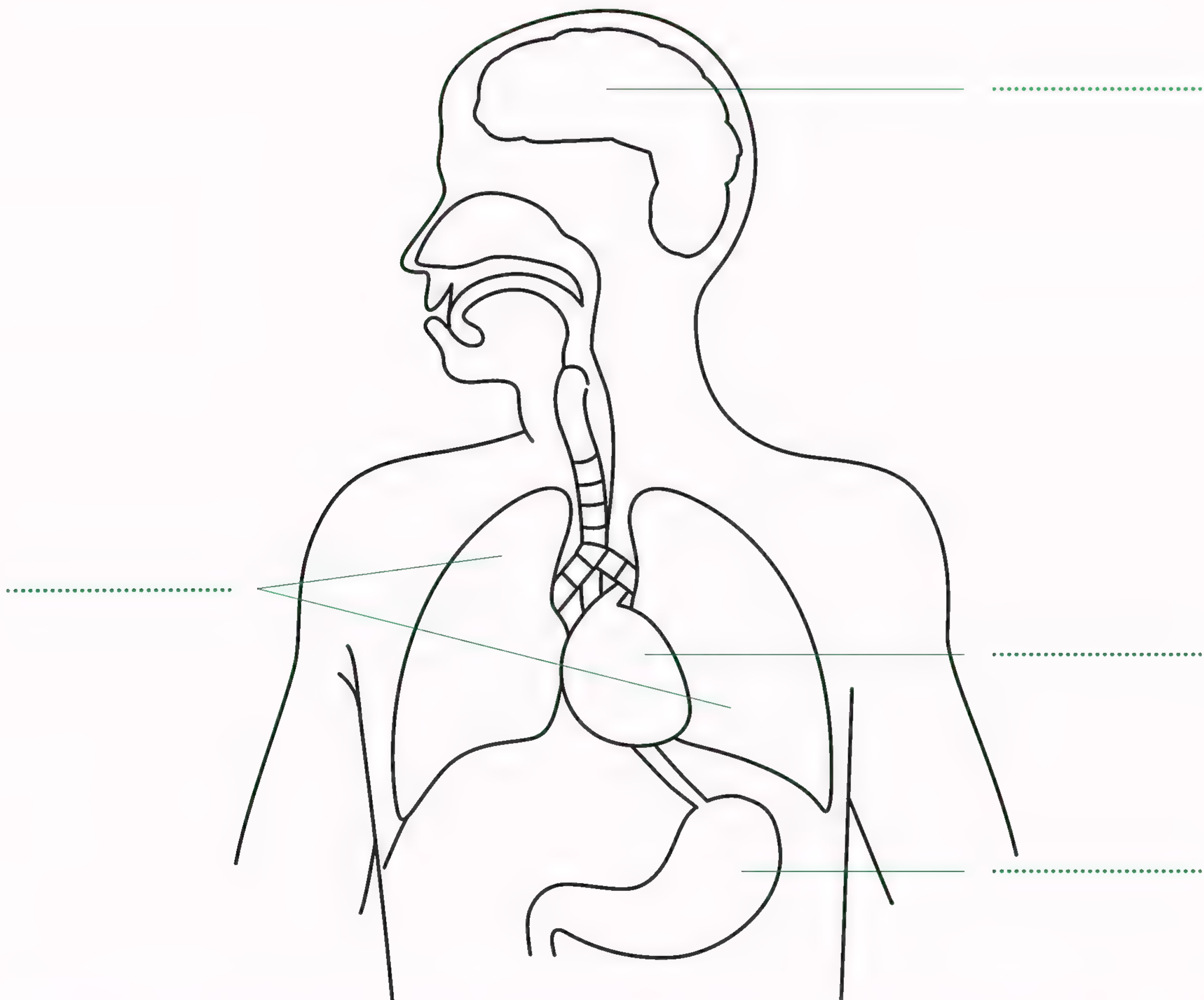
Use the words in the box to write the labels for the drawing below.

Brain

Heart

Lungs

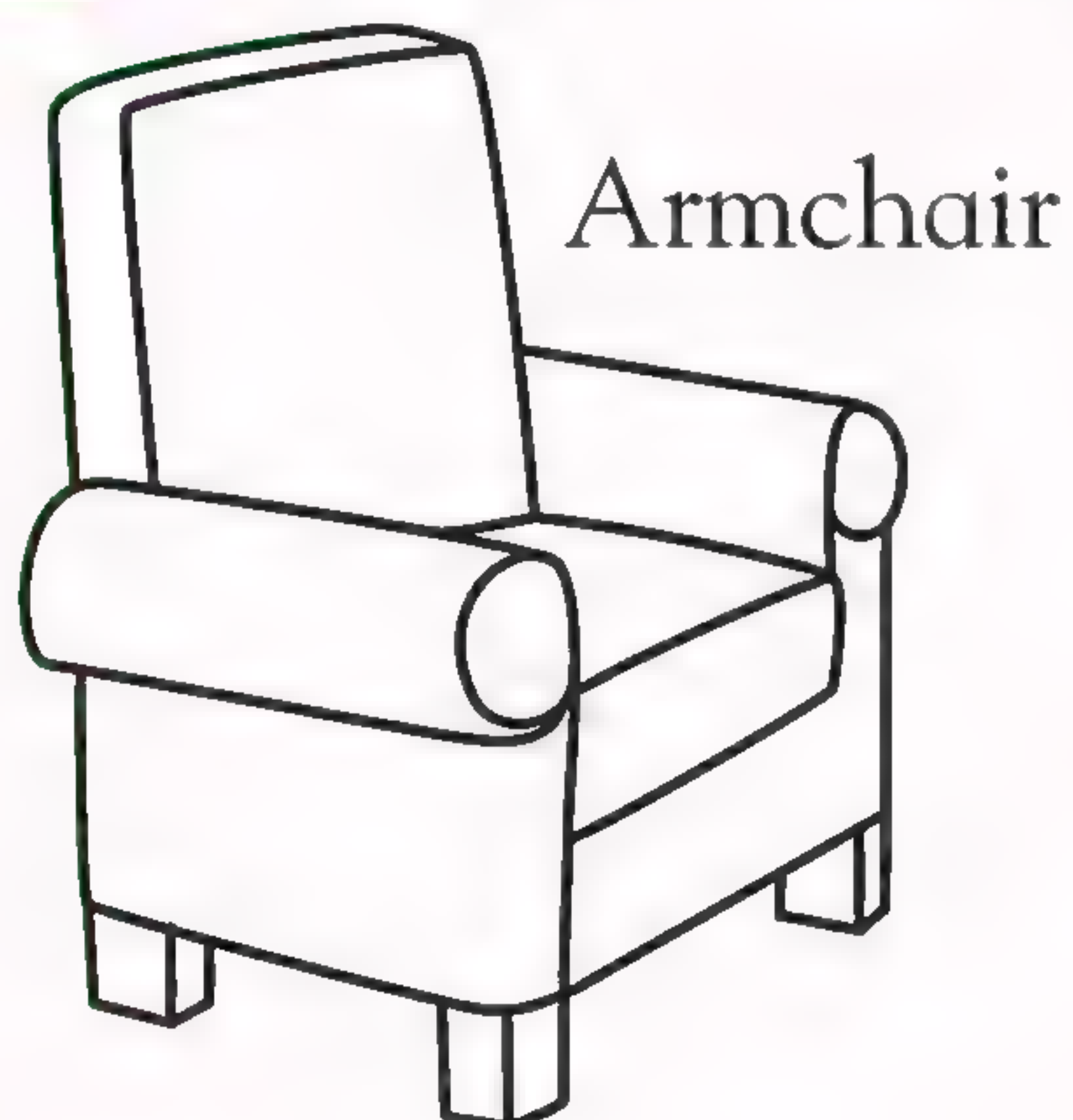
Stomach





The heart pumps blood around the body. The blood travels in tubes called arteries and veins. Arteries open and close as blood passes through them. If arteries are near the surface of the skin, you can feel them opening and closing. This is called the pulse. How fast your pulse beats, tells you how fast your heart is beating.

TEST What You Need:



What To Do:

1. Stand still for about a minute, then find your pulse by placing your fingers on the side of your neck, just underneath your jaw.
2. Sit down on the chair and relax for a few minutes. Find your pulse again. Record whether it is faster or slower than when you were standing.
3. Walk around for a few minutes, then find your pulse again. Record whether it is faster or slower than when you were sitting.
4. Run around for a few minutes, then find your pulse once more. Record whether it is faster or slower than when you were walking.

RESULT Study the results you have recorded for each activity.

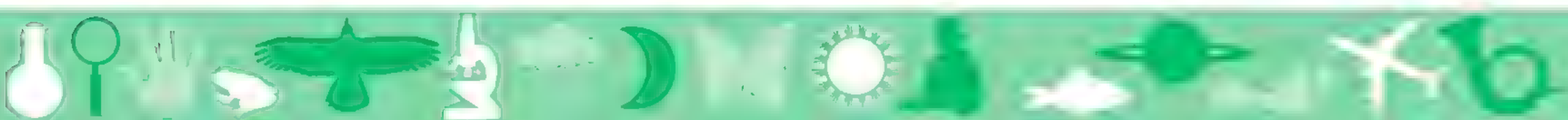
Activity	Faster or Slower Pulse
Sitting down	
Walking	
Running	

What do you notice about your results?

.....

.....

.....





When we eat, sometimes food can get stuck between our teeth. If we leave it there, germs can grow and cause tooth decay. So, we should regularly brush our teeth to keep them clean and free of germs.

A teacher asks a class of children to do a survey of how often they brush their teeth. The children record their results on a chart:

How Often We Brush Our Teeth

Never					
Not very often	Sean	Sam			
Once a day	James	Amy			
Twice a day	Oliver	Tom	Emily	Maria	Rachel
After every meal	Mina	John	Ling	Kelly	

Which children have the cleanest teeth?

.....

The Best Way To Clean Your Teeth

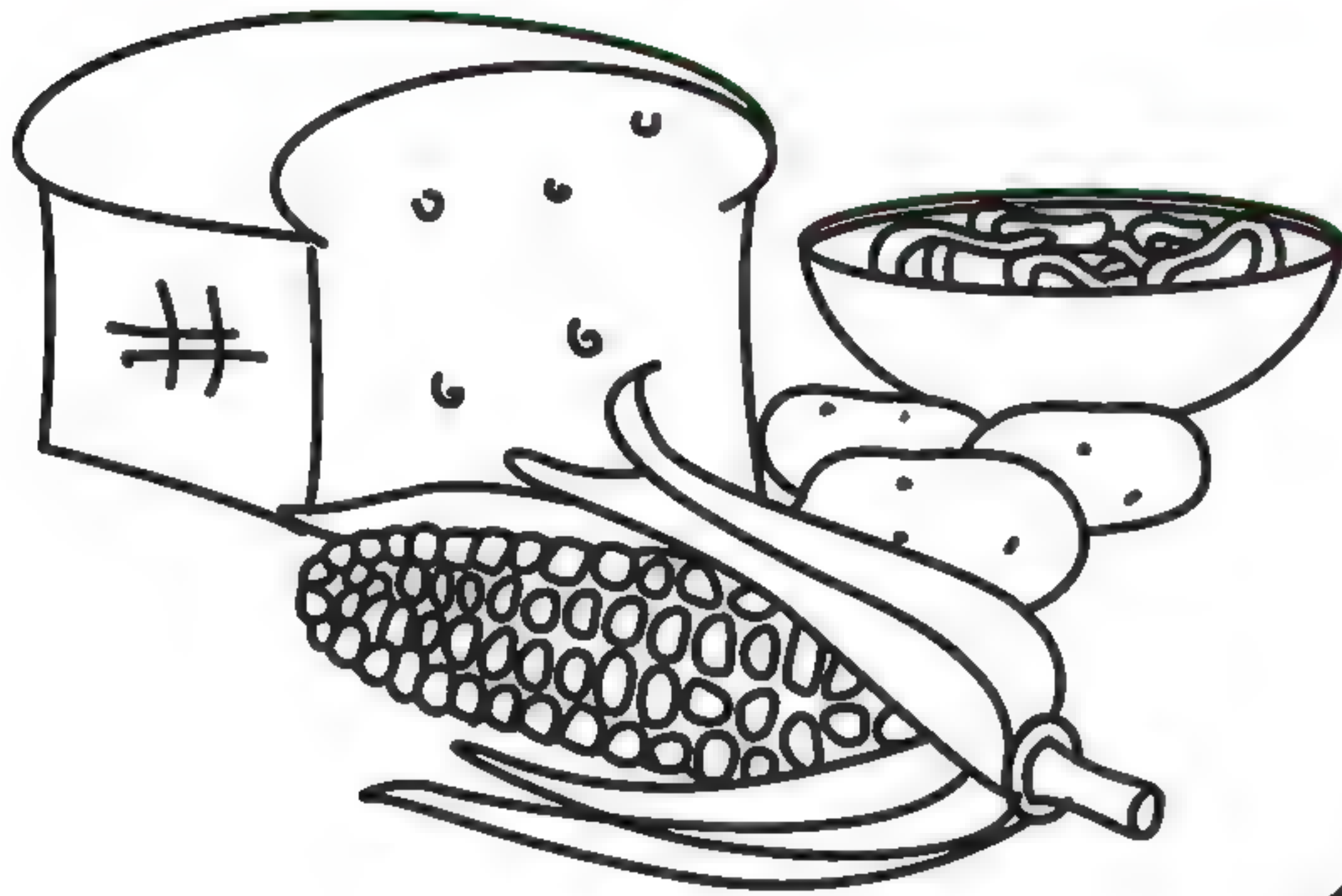
Read the sentences below. Circle the best method of cleaning your teeth.

- A. Eat an apple.
- B. Rinse your mouth with water.
- C. Brush your teeth with toothpaste, then rinse with water.

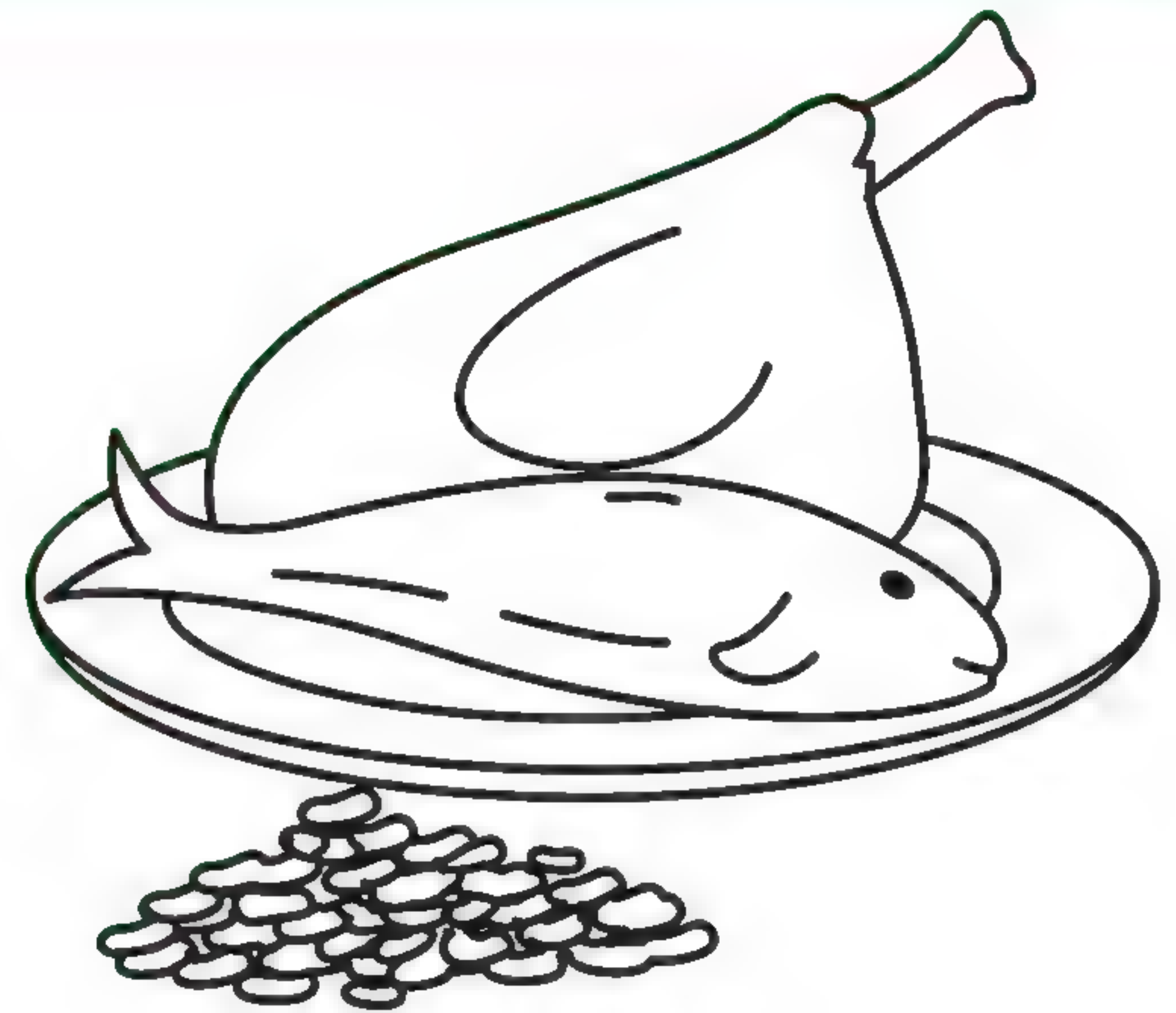




We get our energy and nutrients from the foods we eat. It is important to eat fresh foods from different food groups to be fit and healthy.



Grains and
potatoes



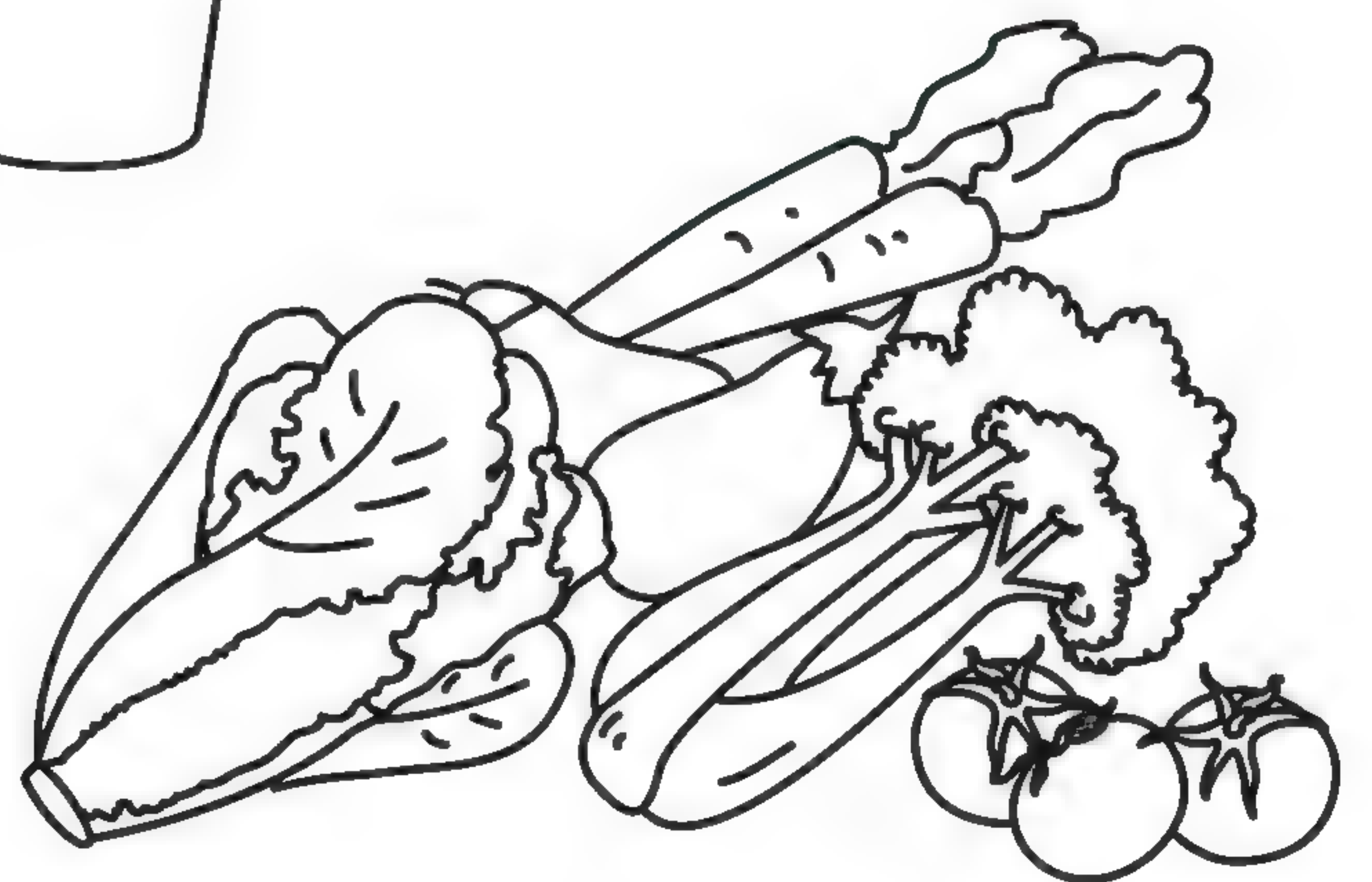
Meats and
beans



Dairy

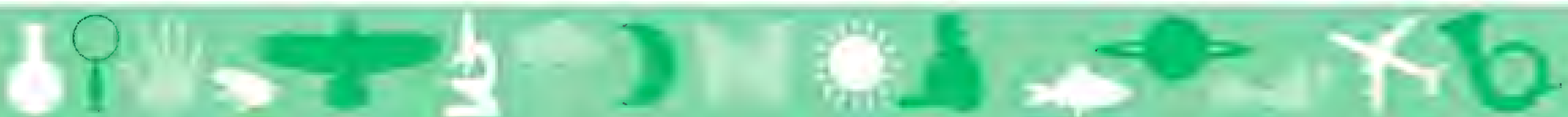


Fruits



Vegetables

Look at the food groups above. Do you eat foods from each of those groups every day? Which are your favorites? Which are your least favorites? Color in the food groups, and add any of your favorite foods that we left out.



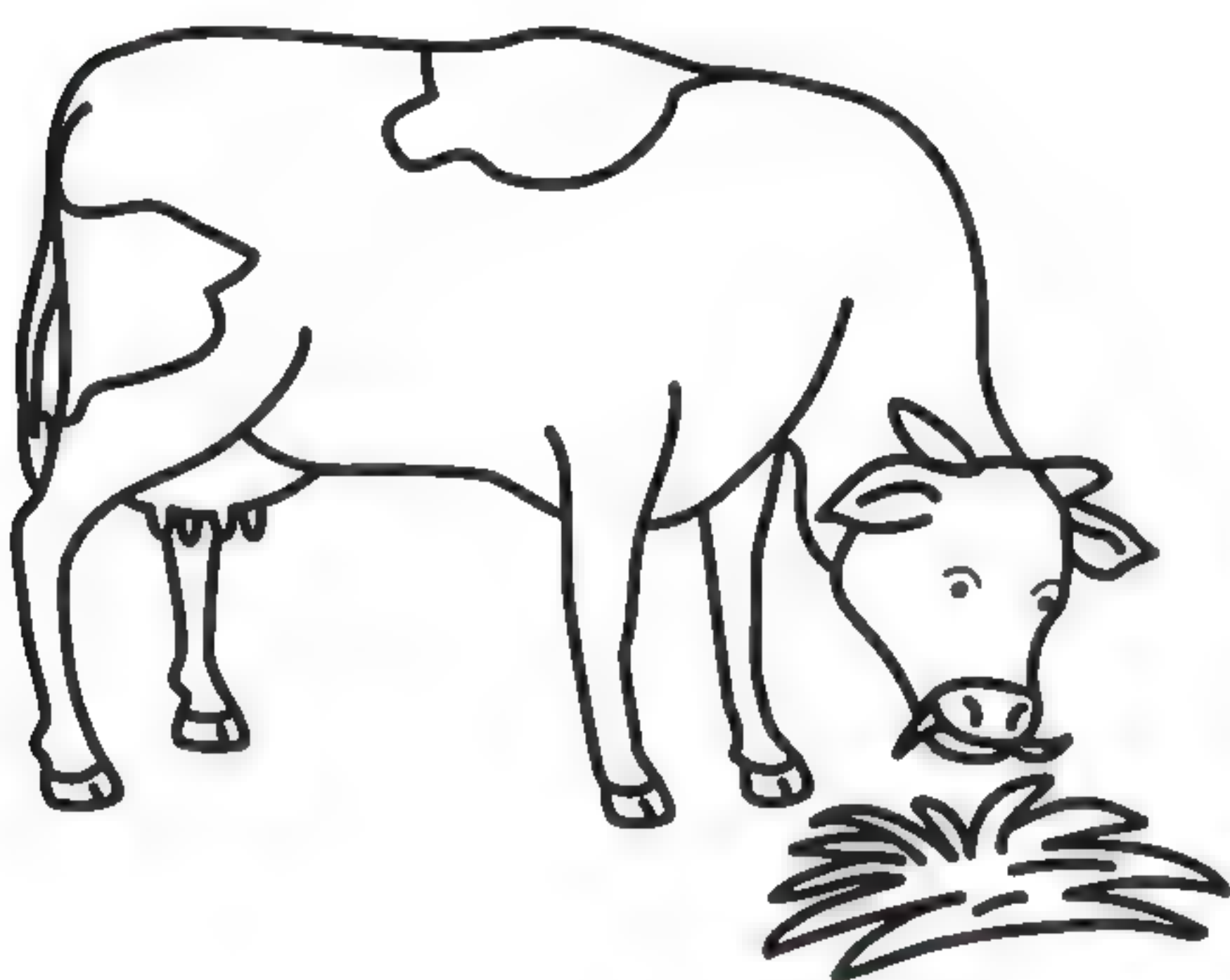


Animal Food

FACTS

Animals that eat only plants, like cows and horses, are called herbivores. Animals that eat only meat, like lions, sharks, and snakes, are called carnivores. Animals that eat both meat and plants, like bears, raccoons, and humans, are called omnivores.

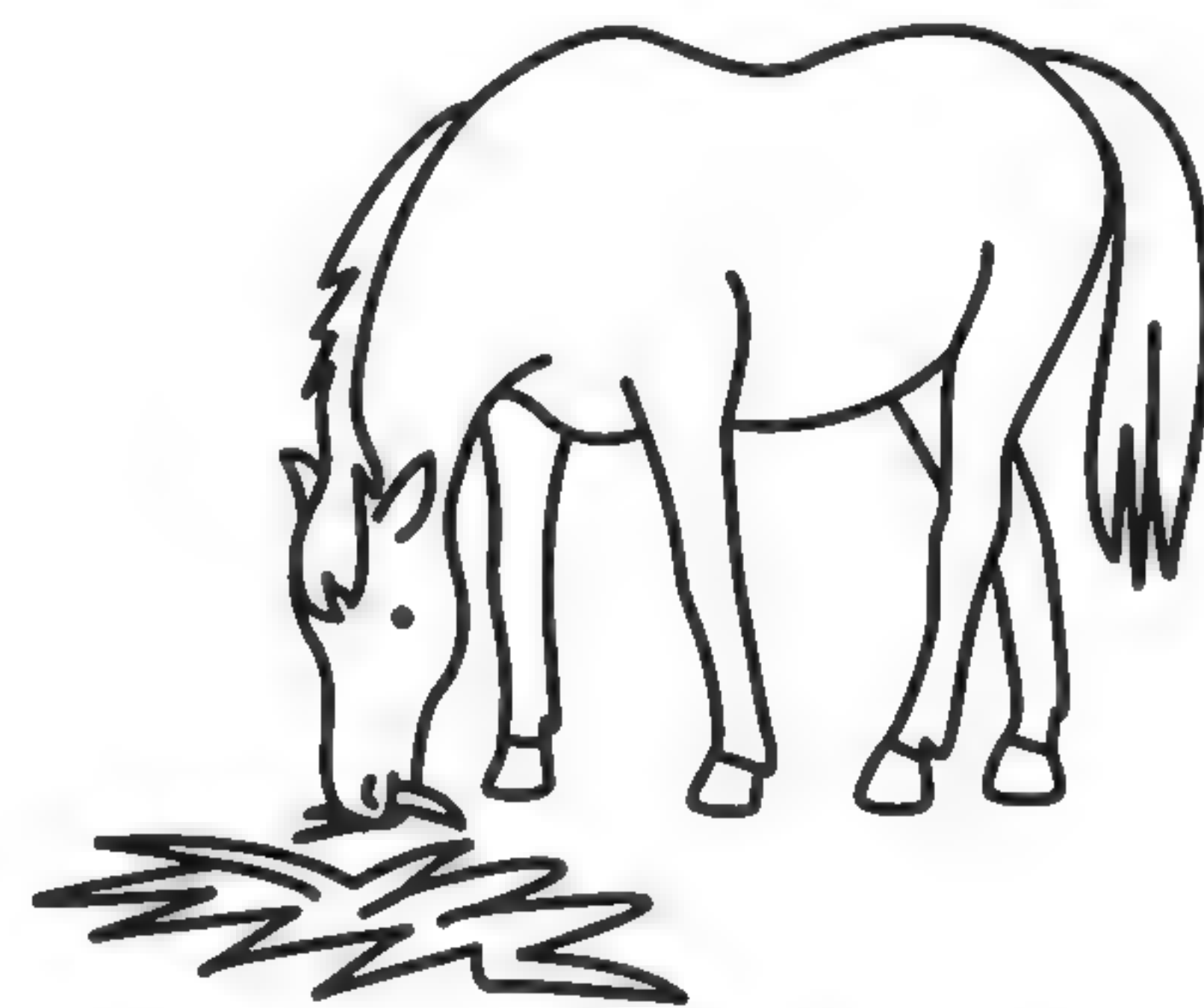
Write **H** near the animals that are herbivores, **C** near the animals that are carnivores, and **O** near the ones that are omnivores.



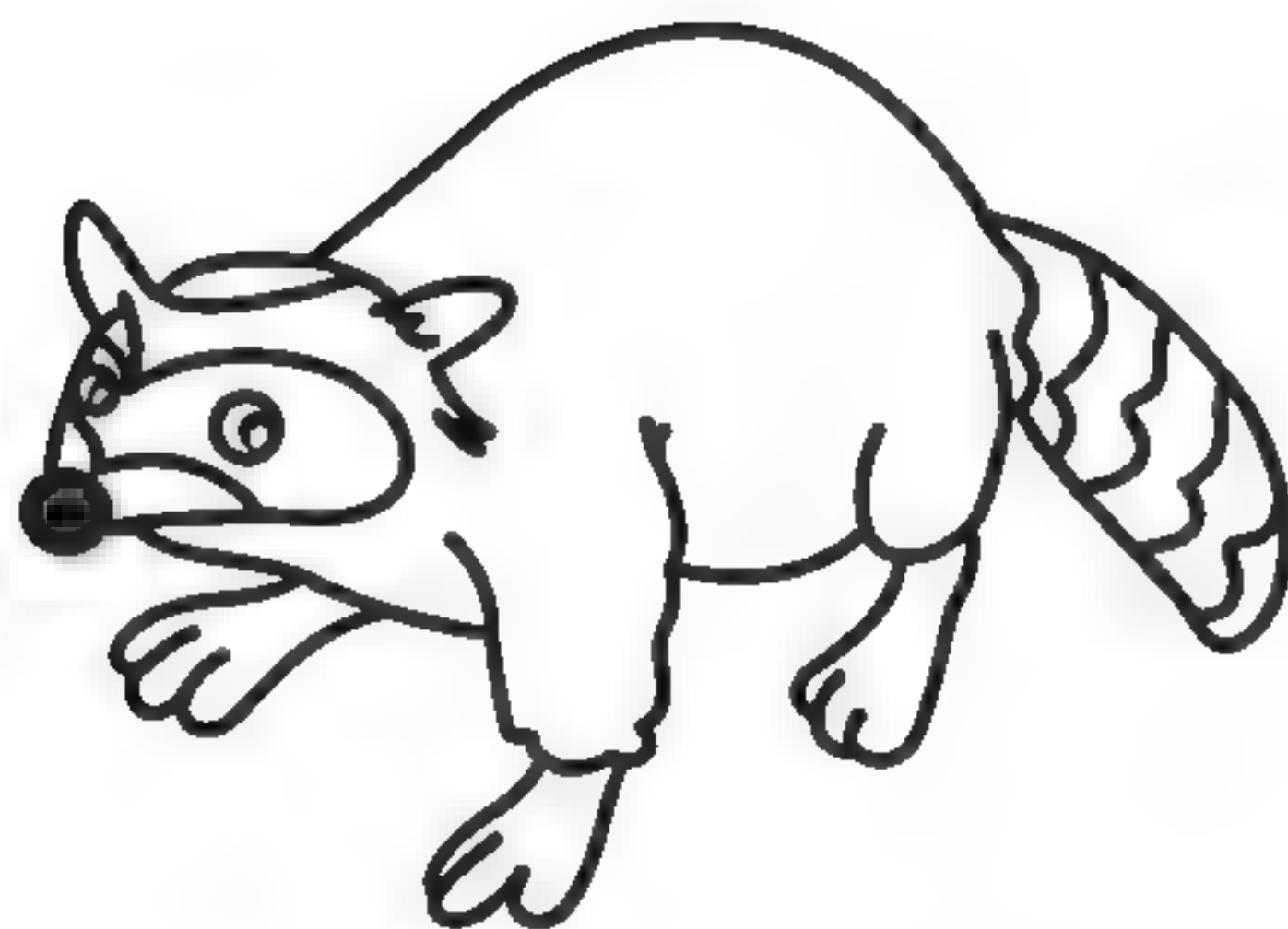
Cow



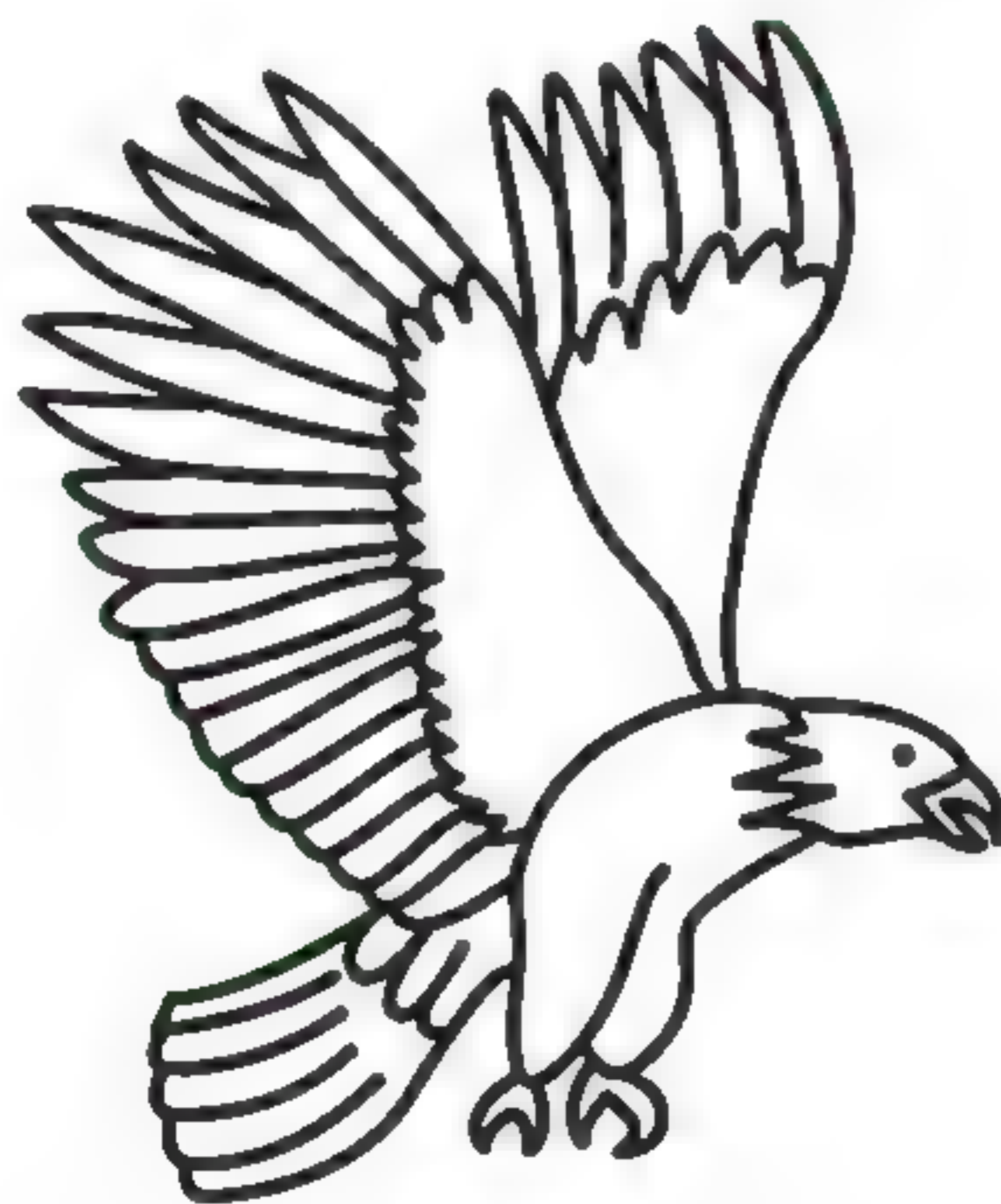
Human



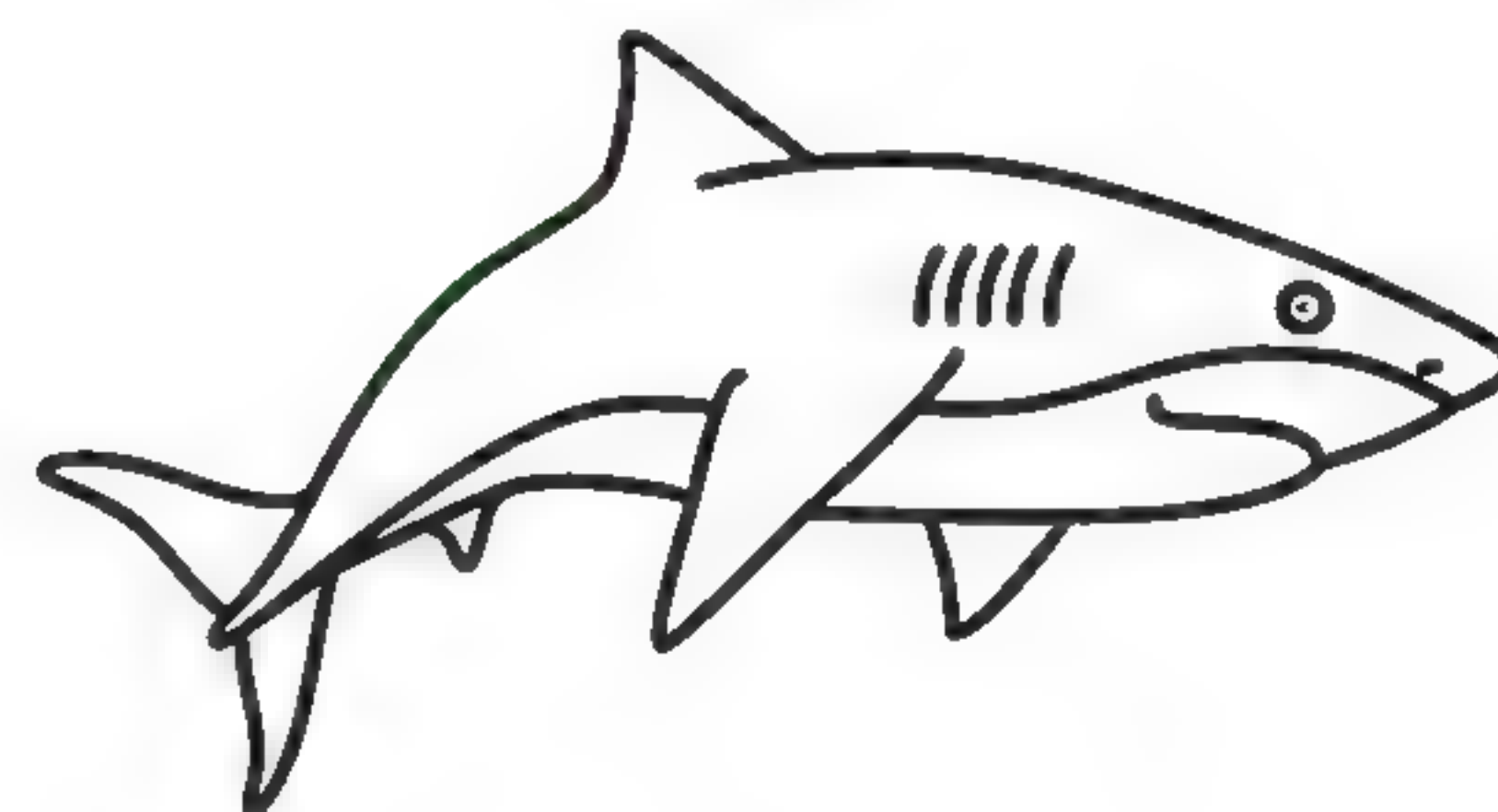
Horse



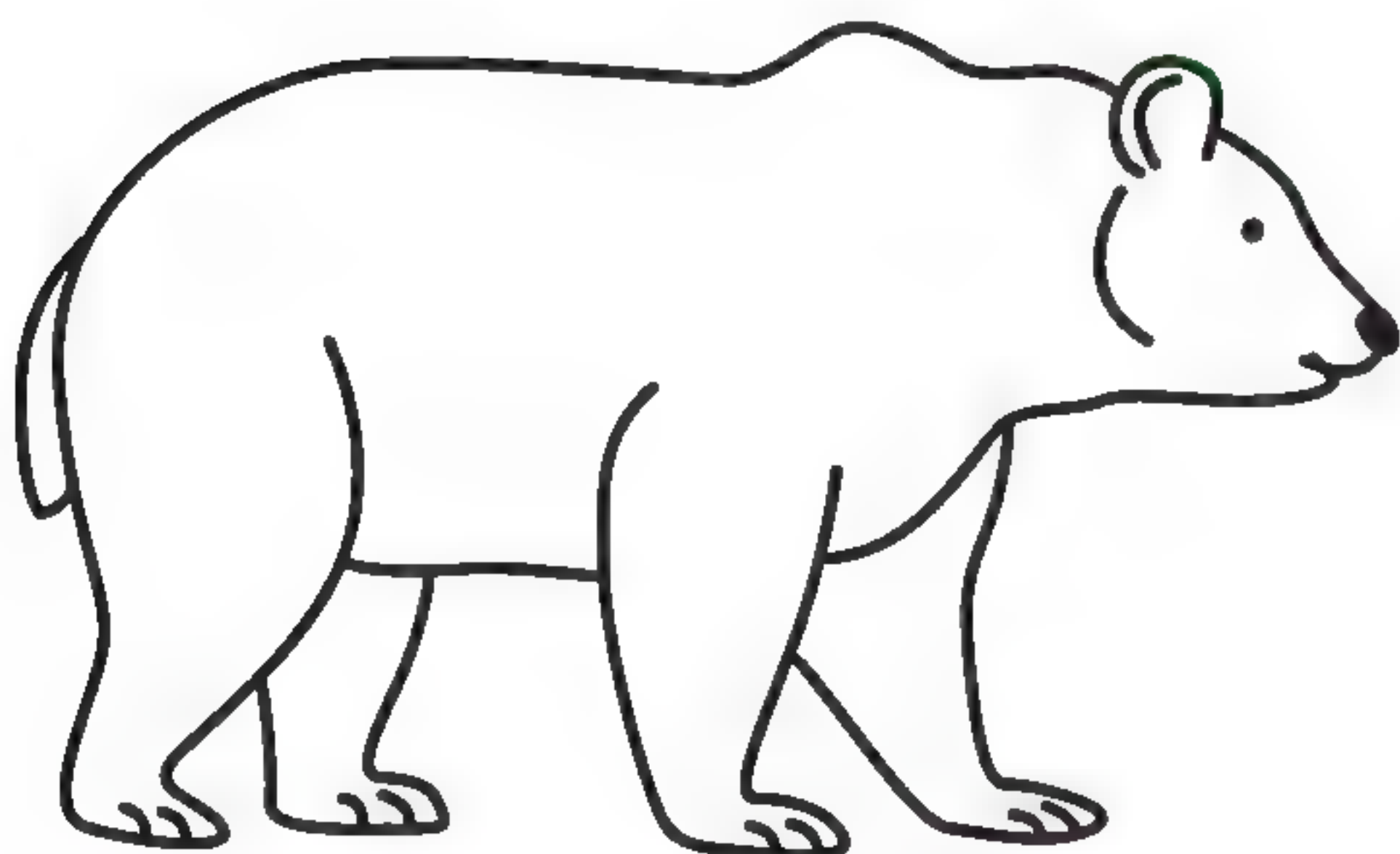
Raccoon



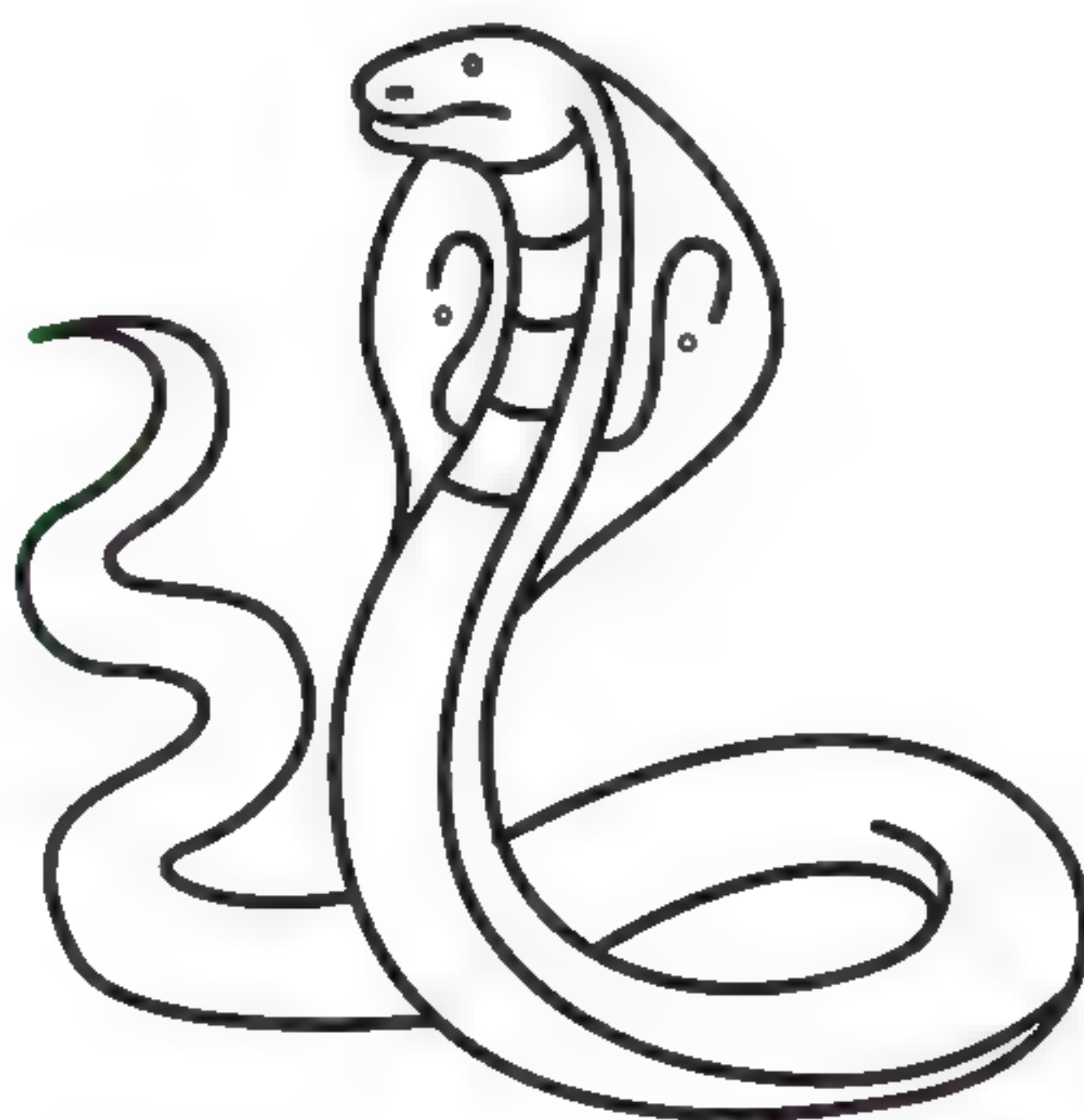
Eagle



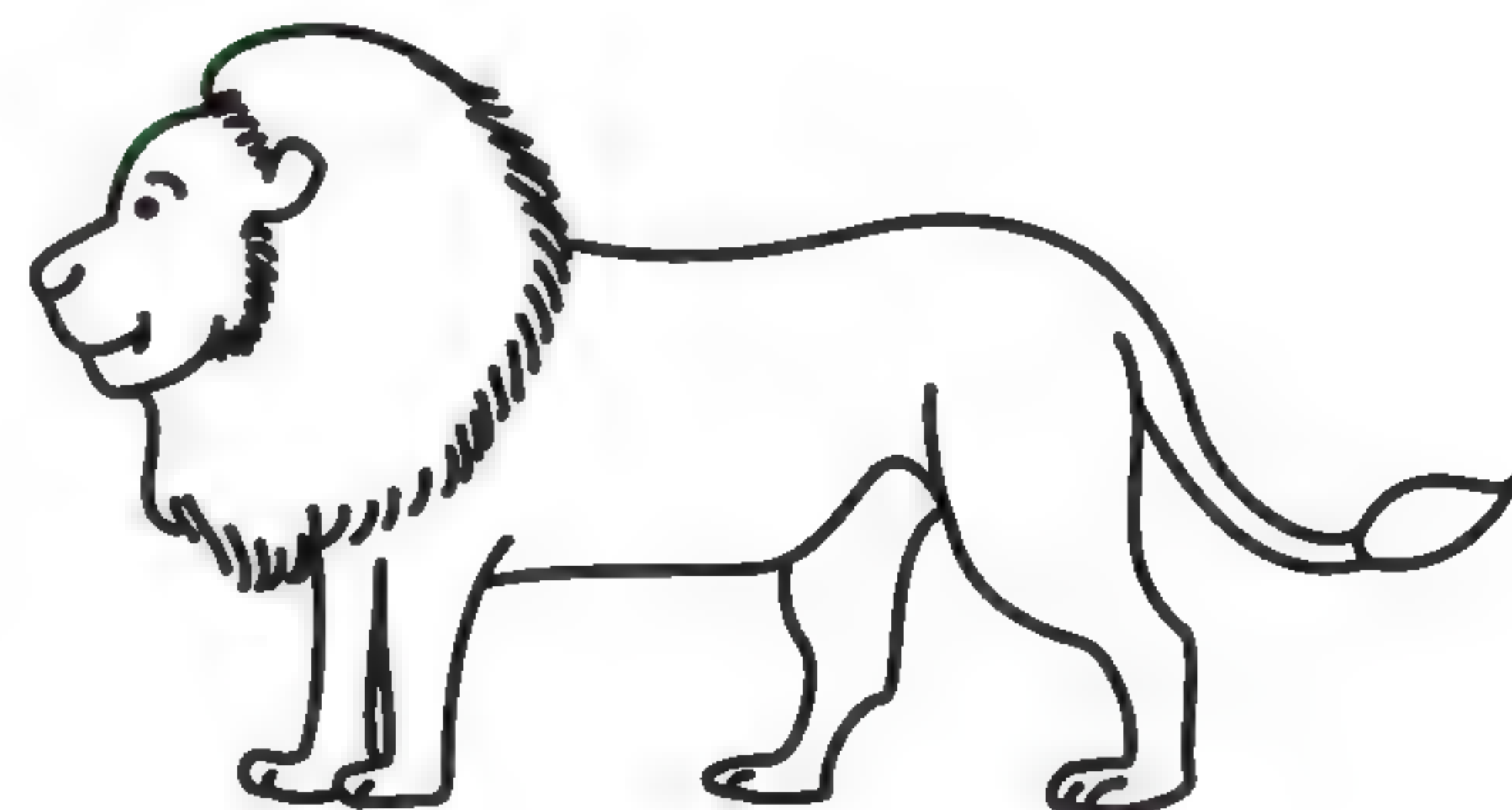
Shark



Bear



Snake



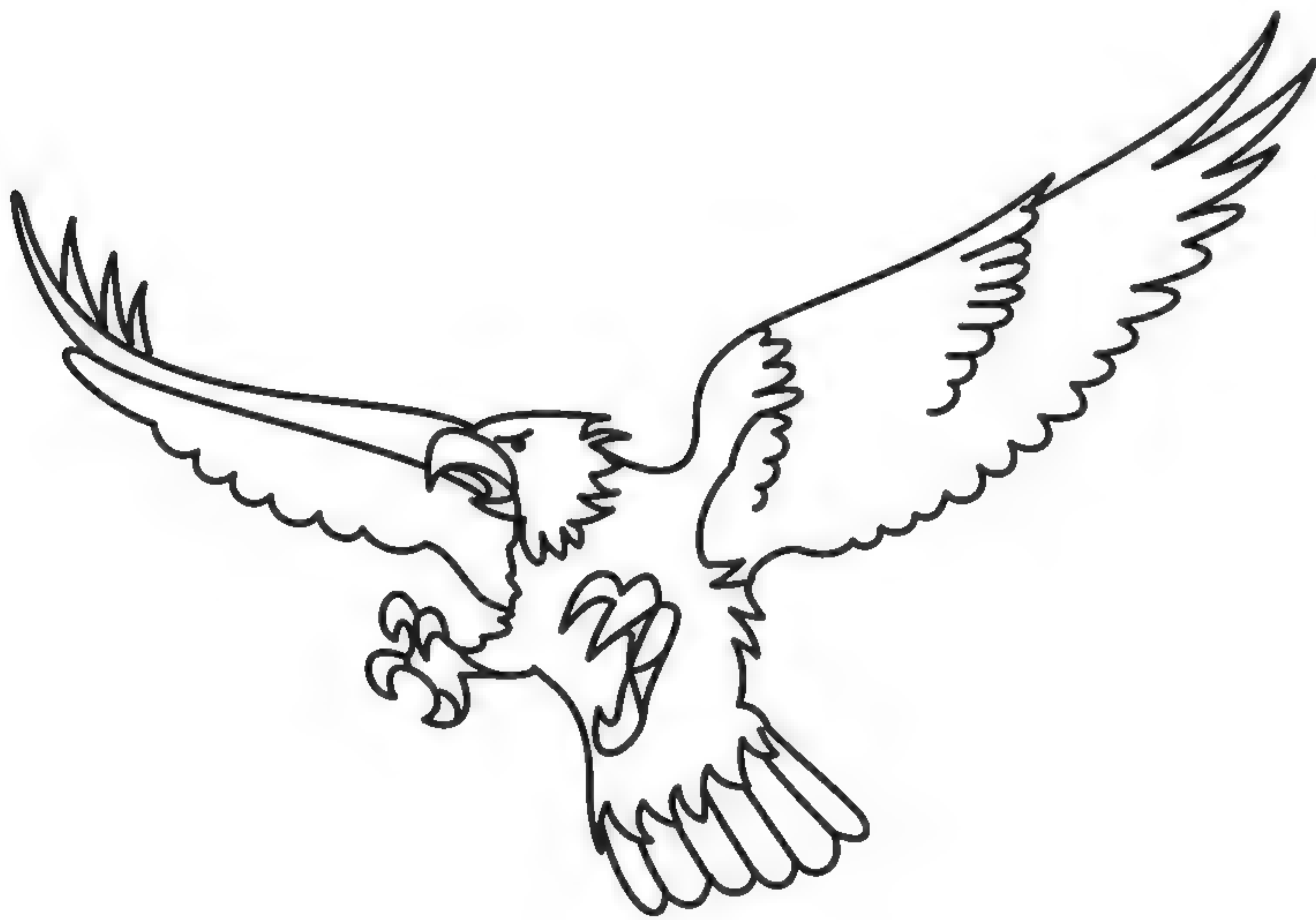
Lion



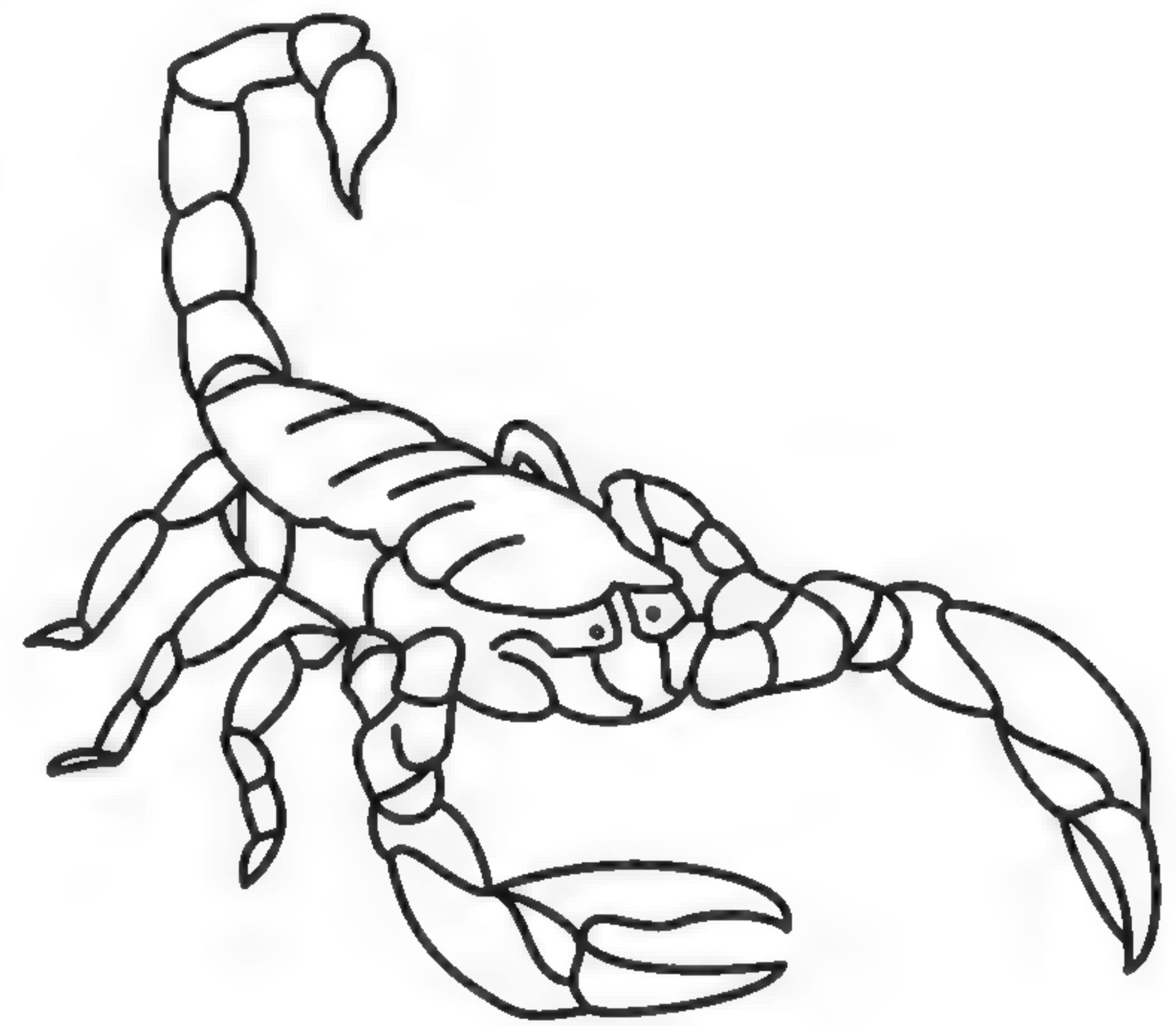


Carnivores catch and kill other animals for food. They have special features that help them do this, such as sharp teeth, beaks, and claws. Many carnivores, like cheetahs and leopards, can also run very fast to catch their prey. Others have good eyesight, like eagles, so they can spot prey from a great distance.

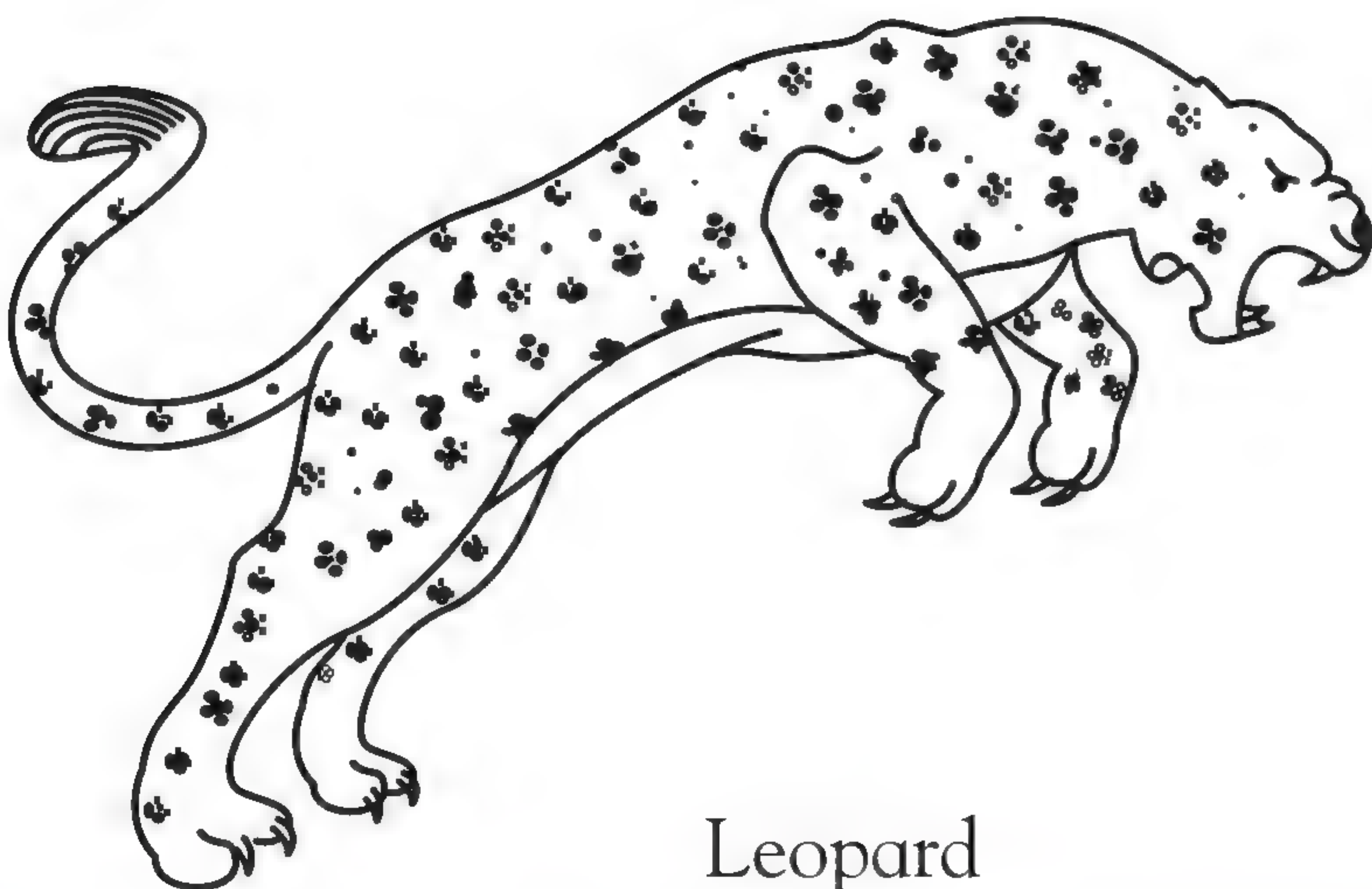
Look at the pictures of the animals below. Circle each part of the animal that will help it to catch and kill prey.



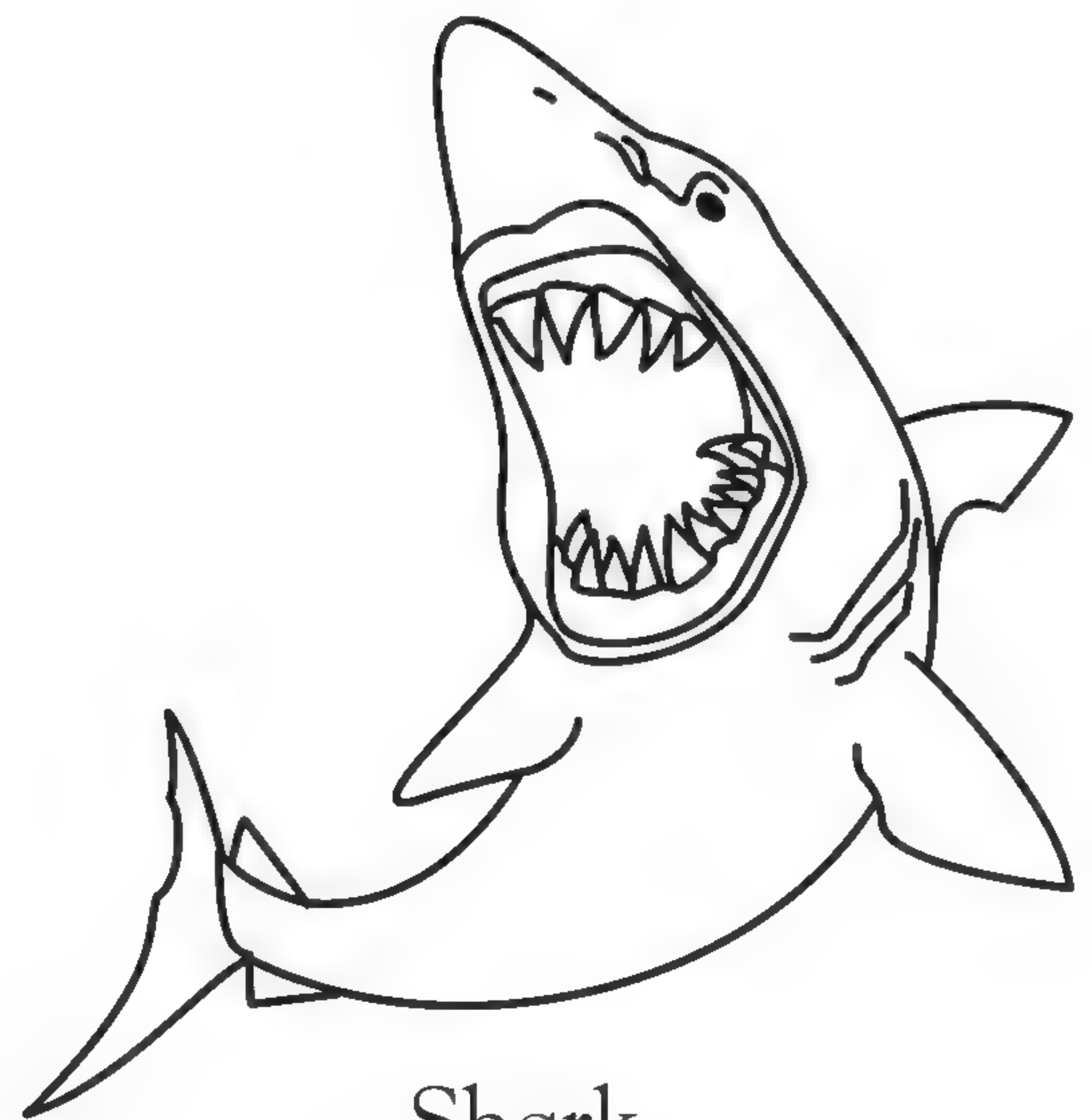
Eagle



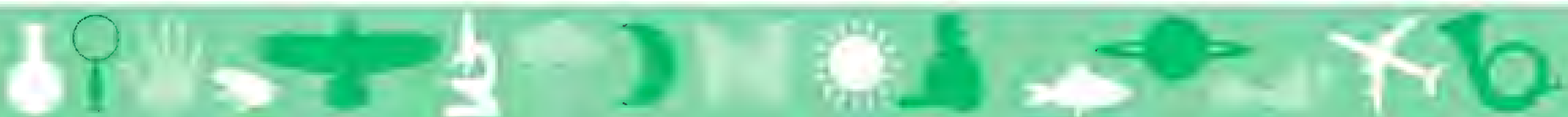
Scorpion



Leopard



Shark





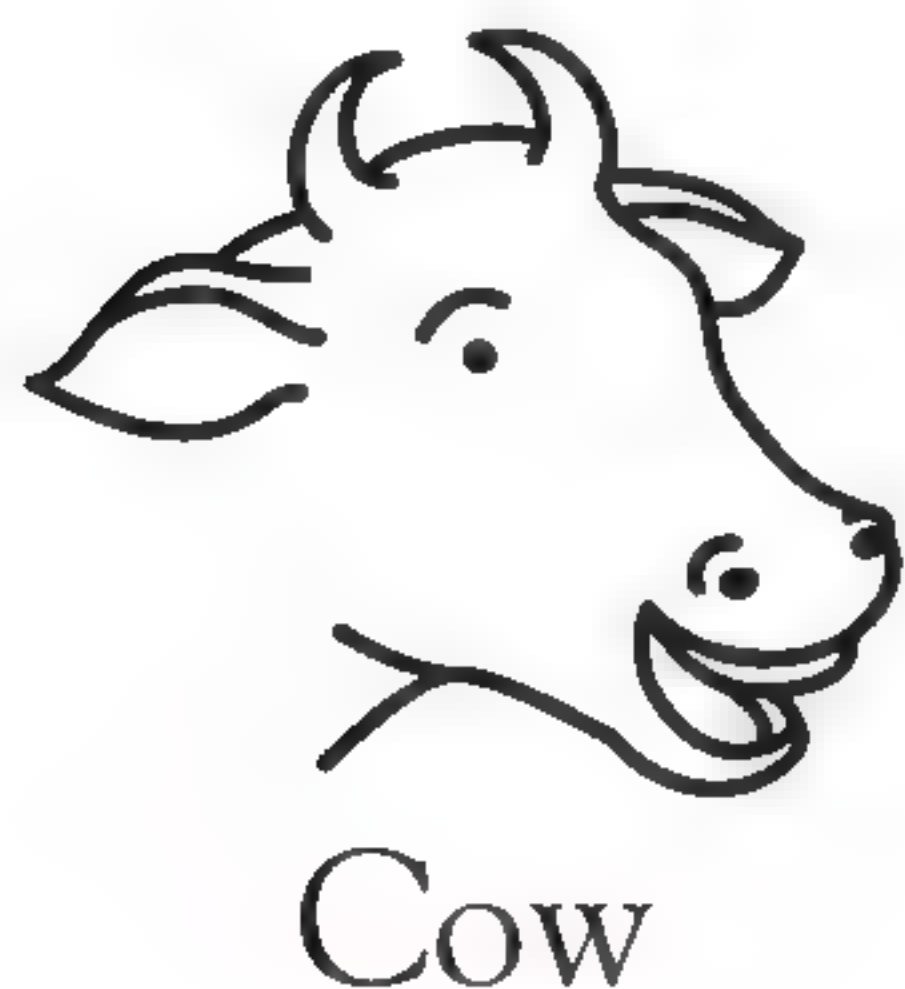
Mouths

FACTS

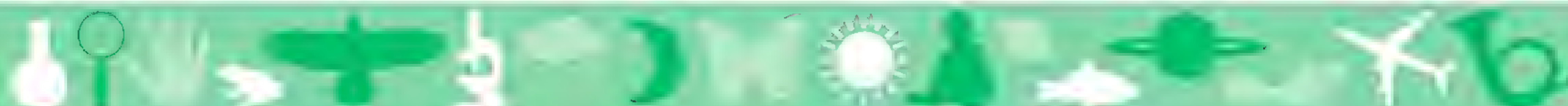
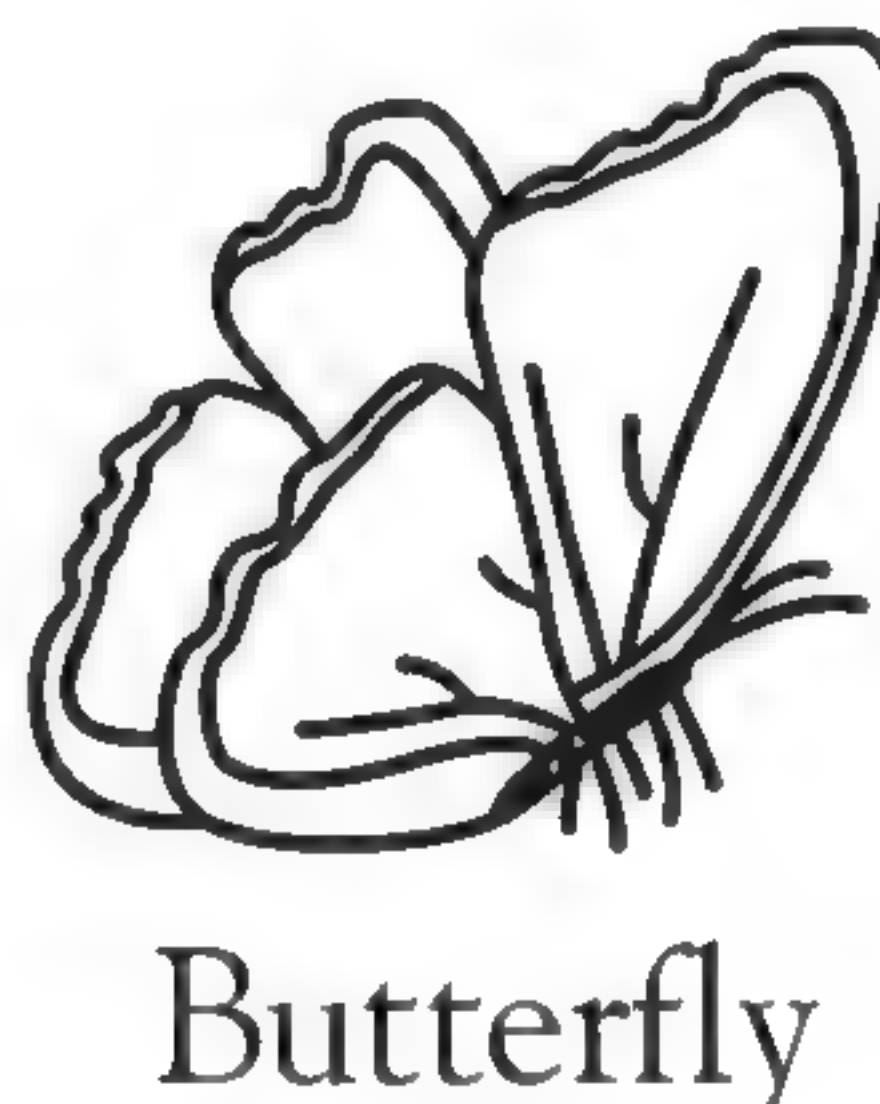
Different animals have different mouth parts that help them eat their favorite foods. Carnivores have sharp, pointed teeth for tearing meat. Herbivores have wide, flat teeth for grinding grass and leaves. Insect-eaters often have long, sticky tongues for catching flying insects. Many birds have sharp, pointed beaks for cracking open nuts and seeds.

Look at the animals and food below. Draw a line between each animal and the food it likes to eat.

Animals



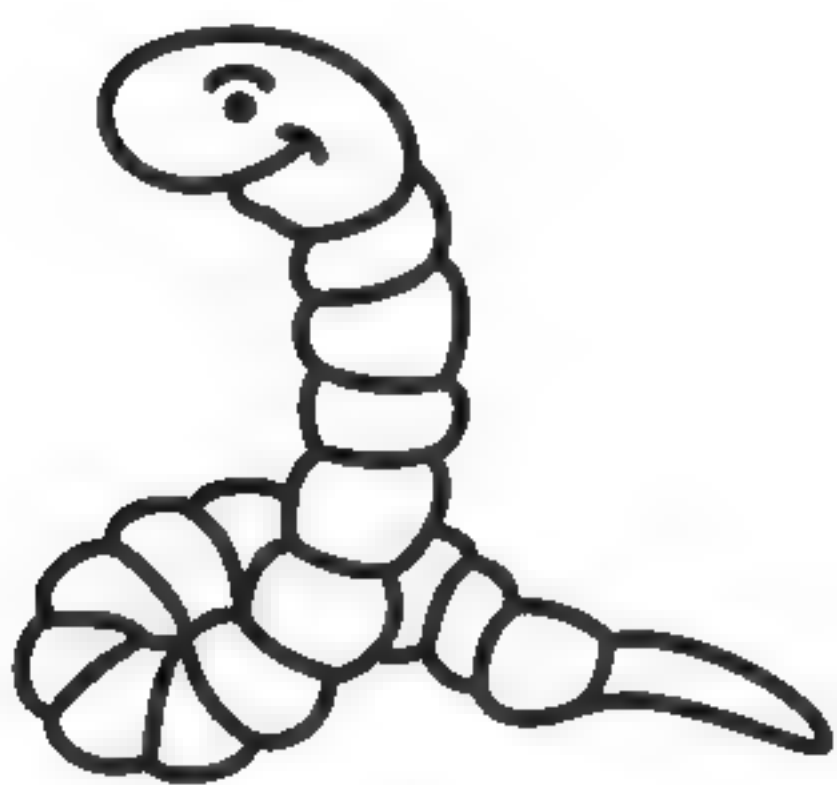
Food



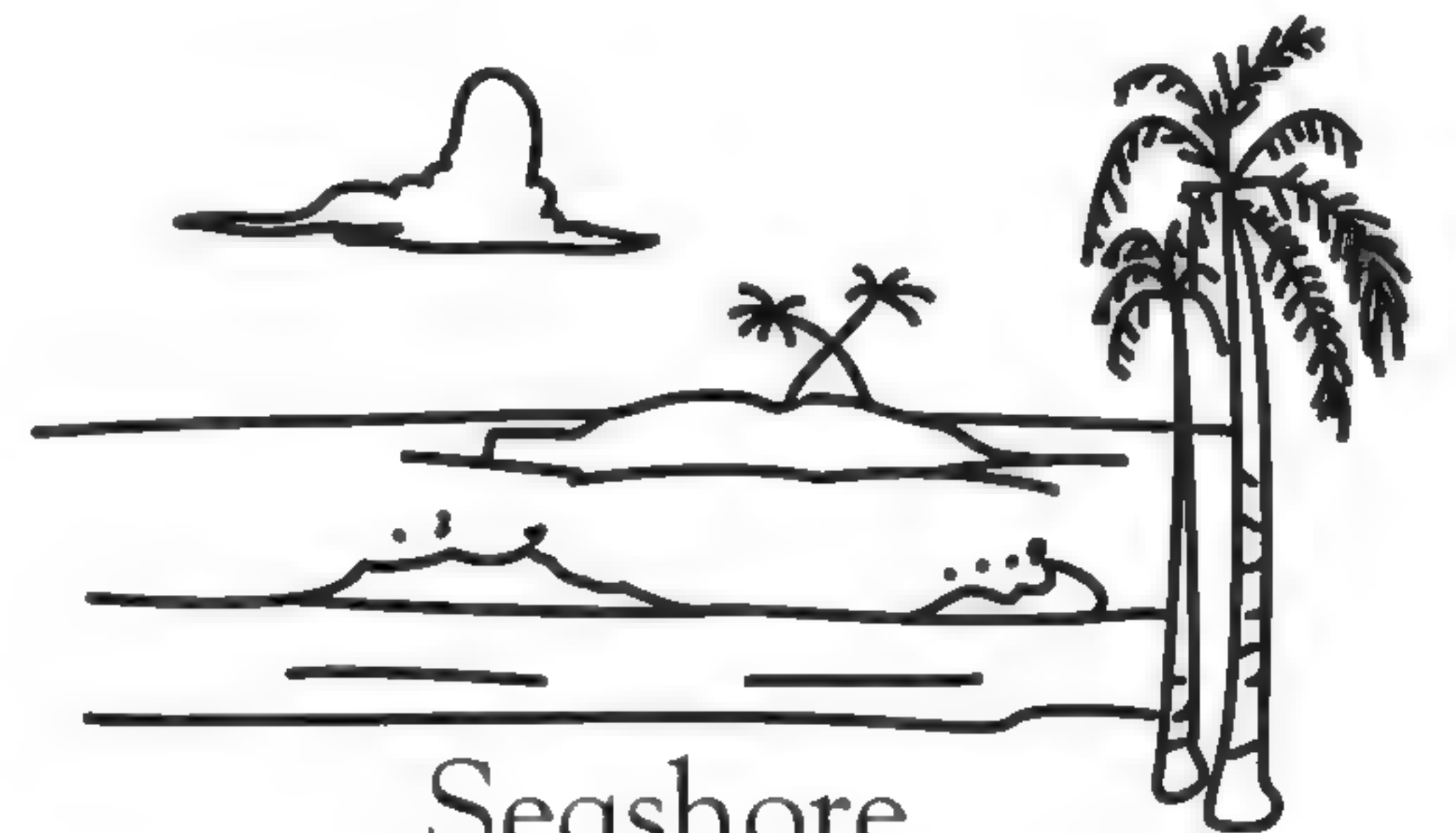


A place where an animal normally lives is called its habitat. Animals are found almost everywhere on Earth, so there are many different kinds of habitats, such as grass, woodland, underground, rivers and lakes, oceans, and the seashore.

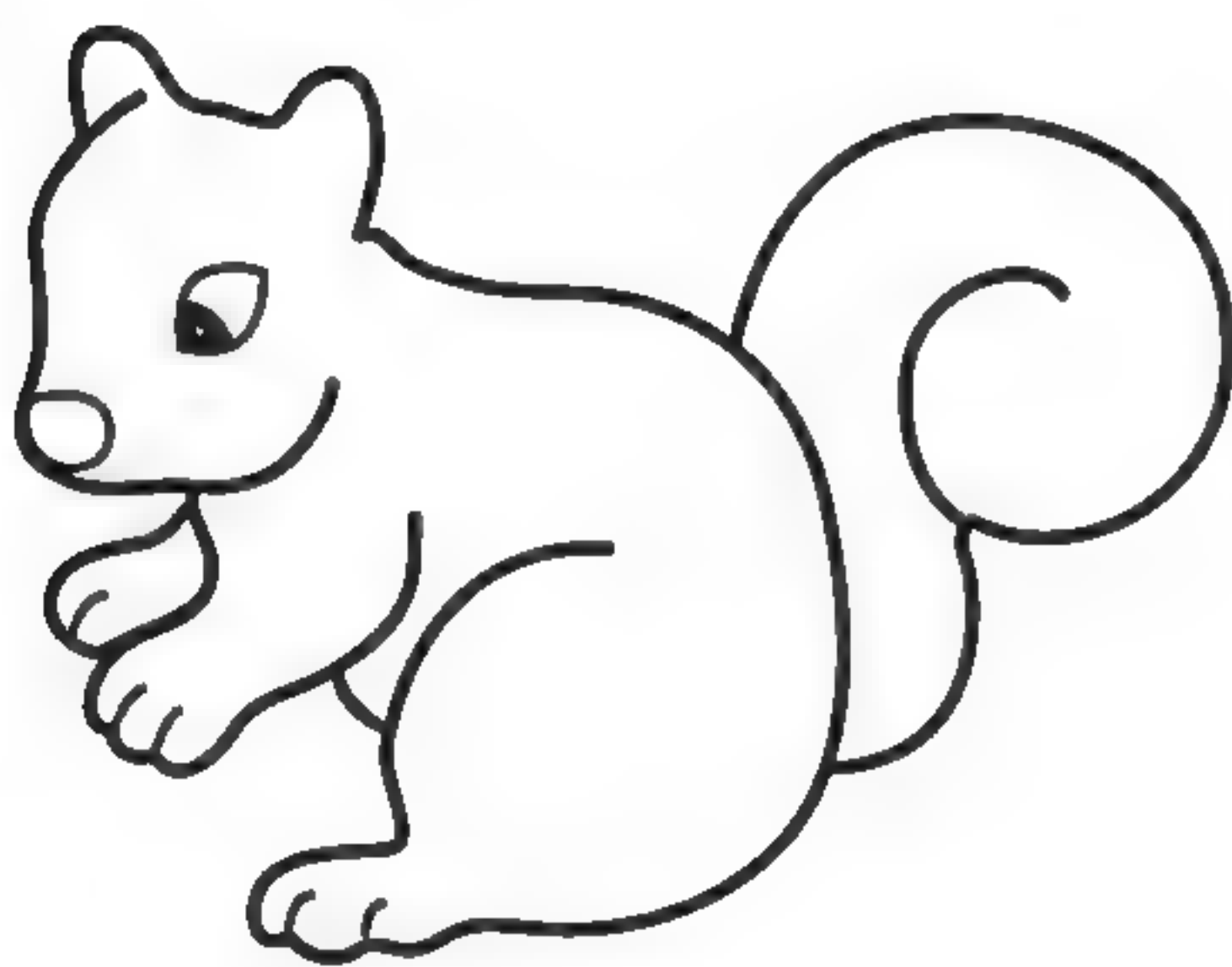
Look at the animals and habitats below. Draw a line between each animal and the picture of its habitat.



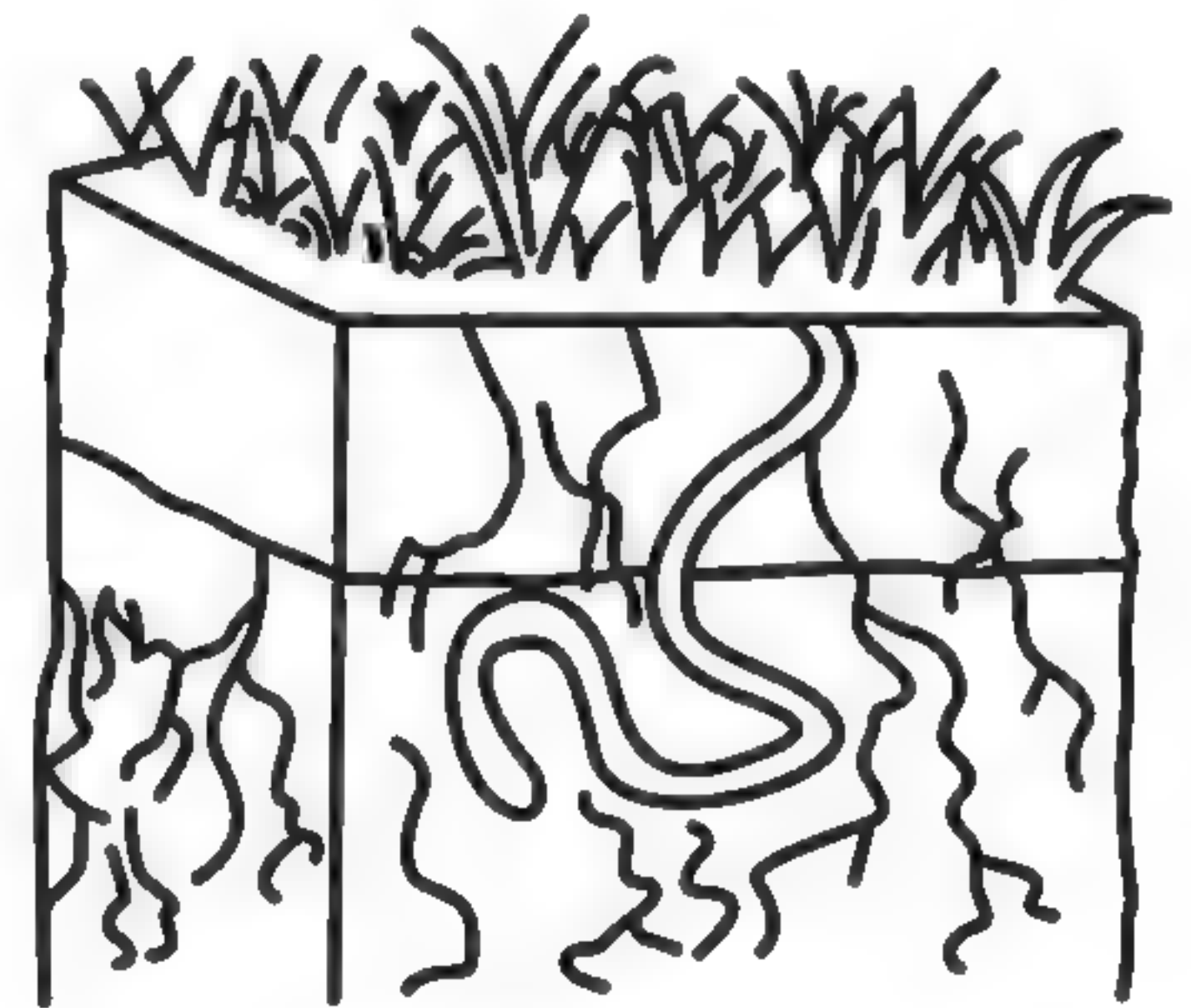
Worm



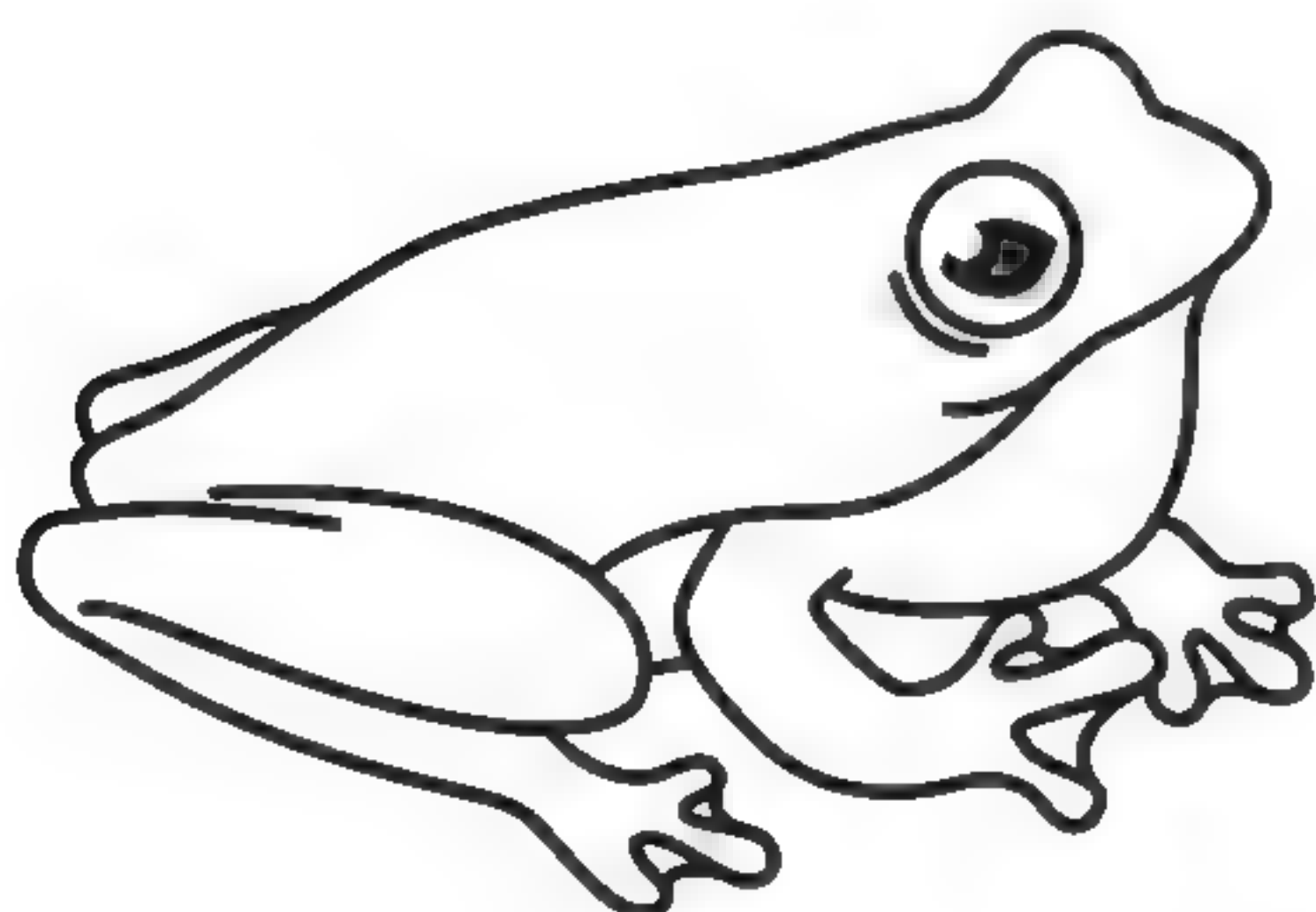
Seashore



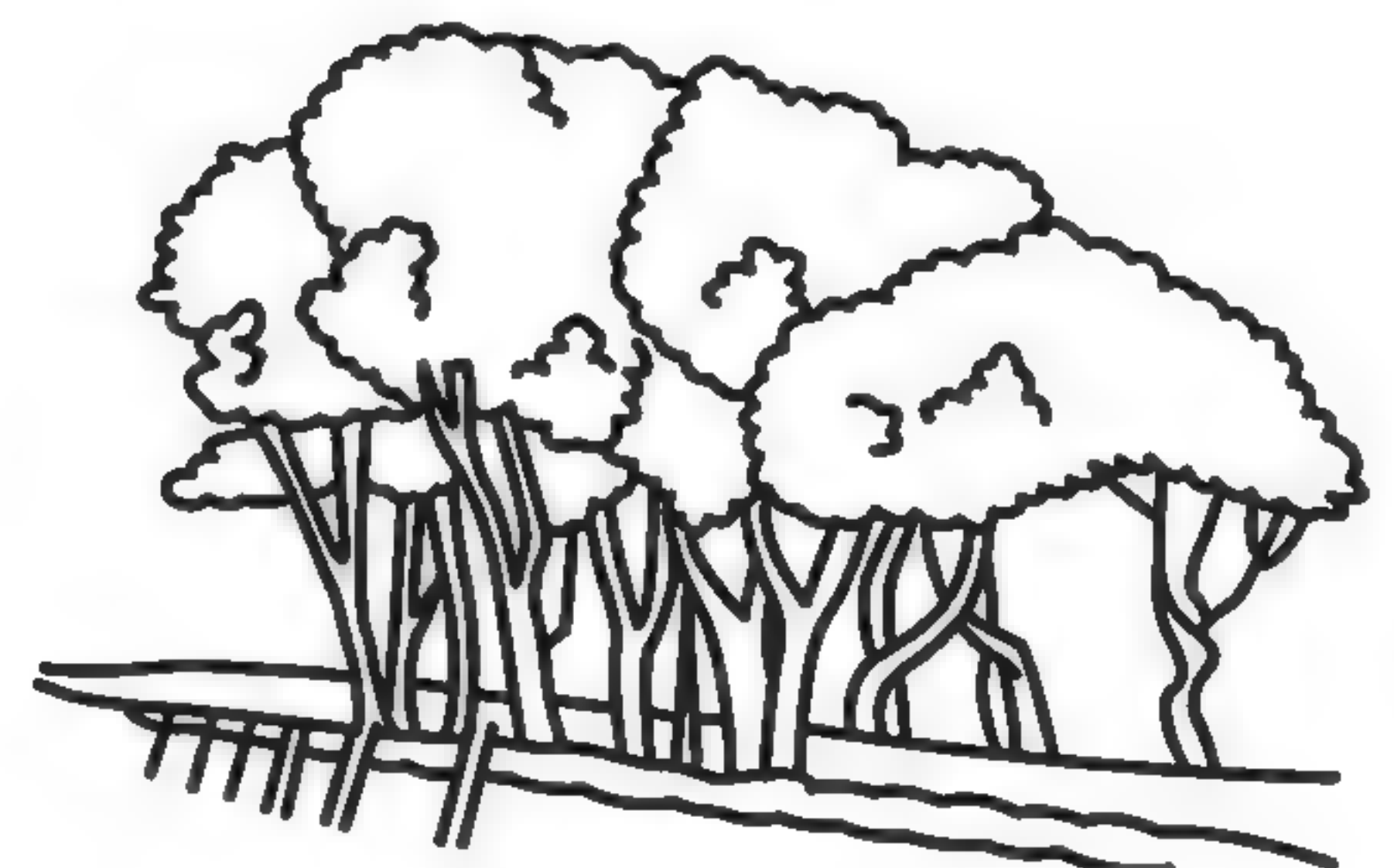
Squirrel



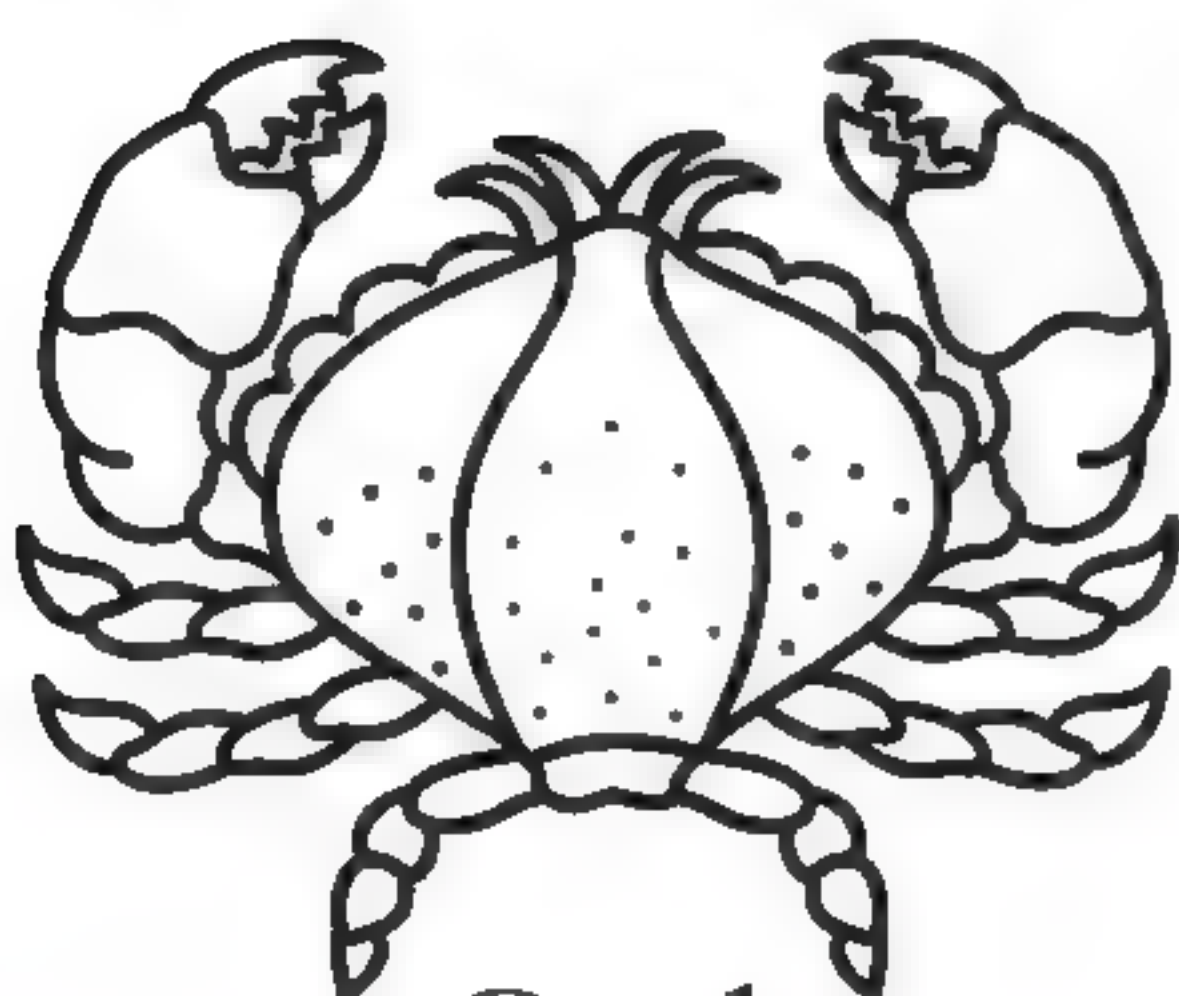
Underground



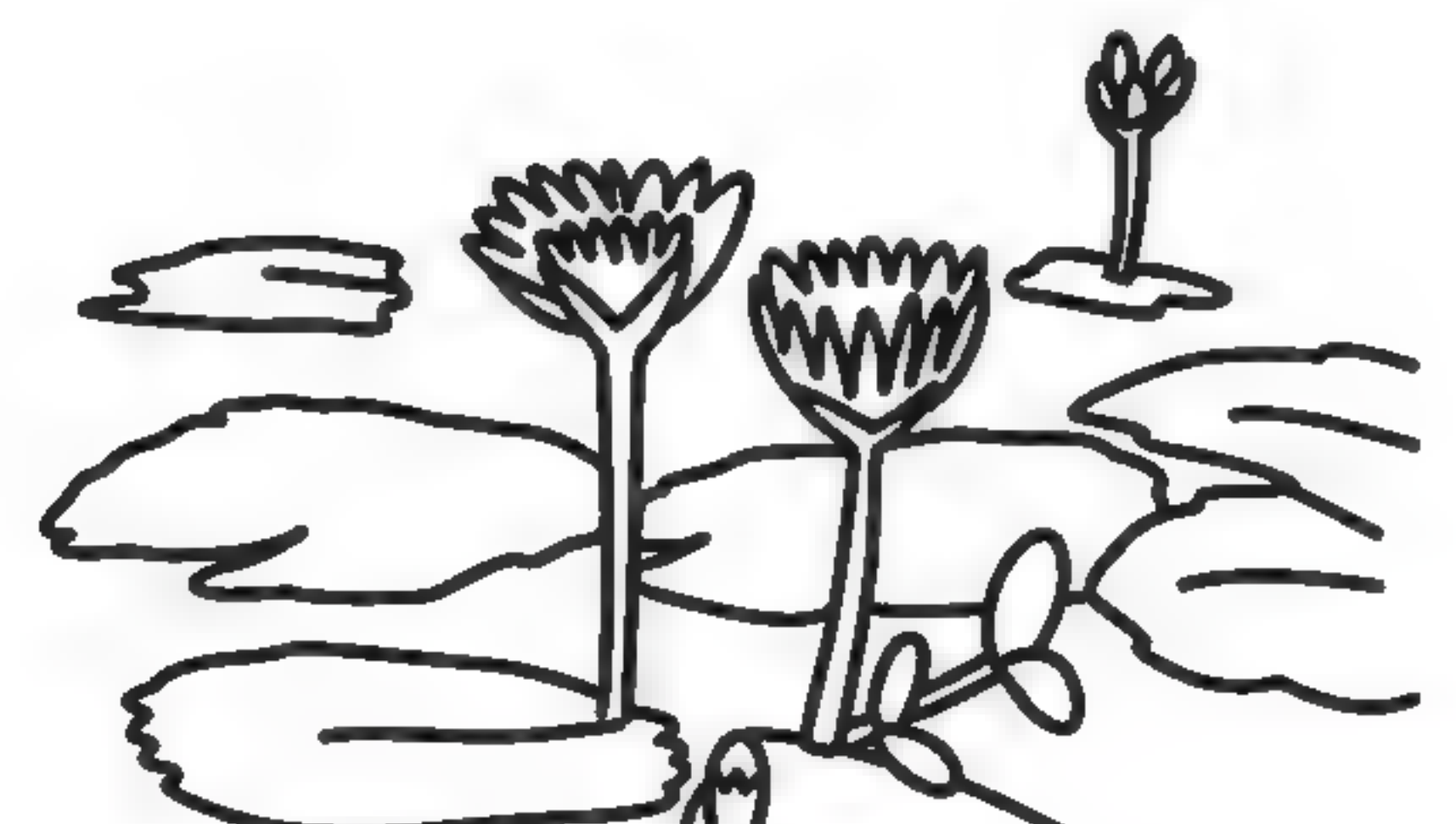
Frog



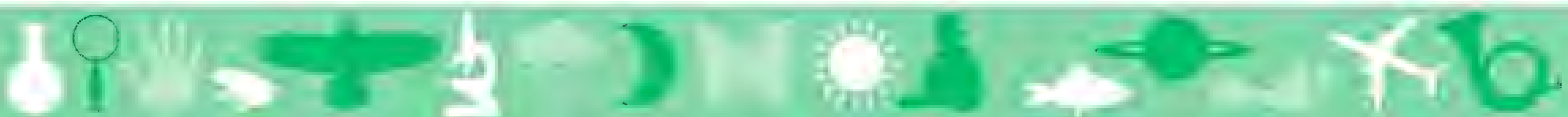
Forest



Crab



Pond



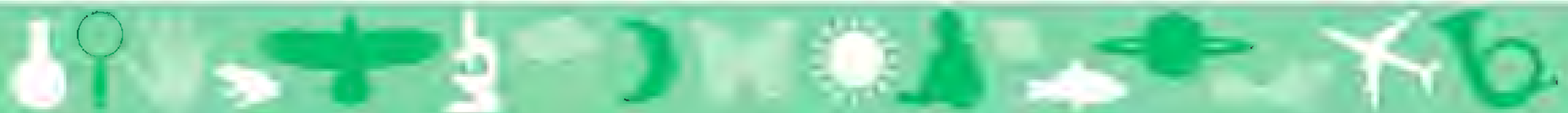
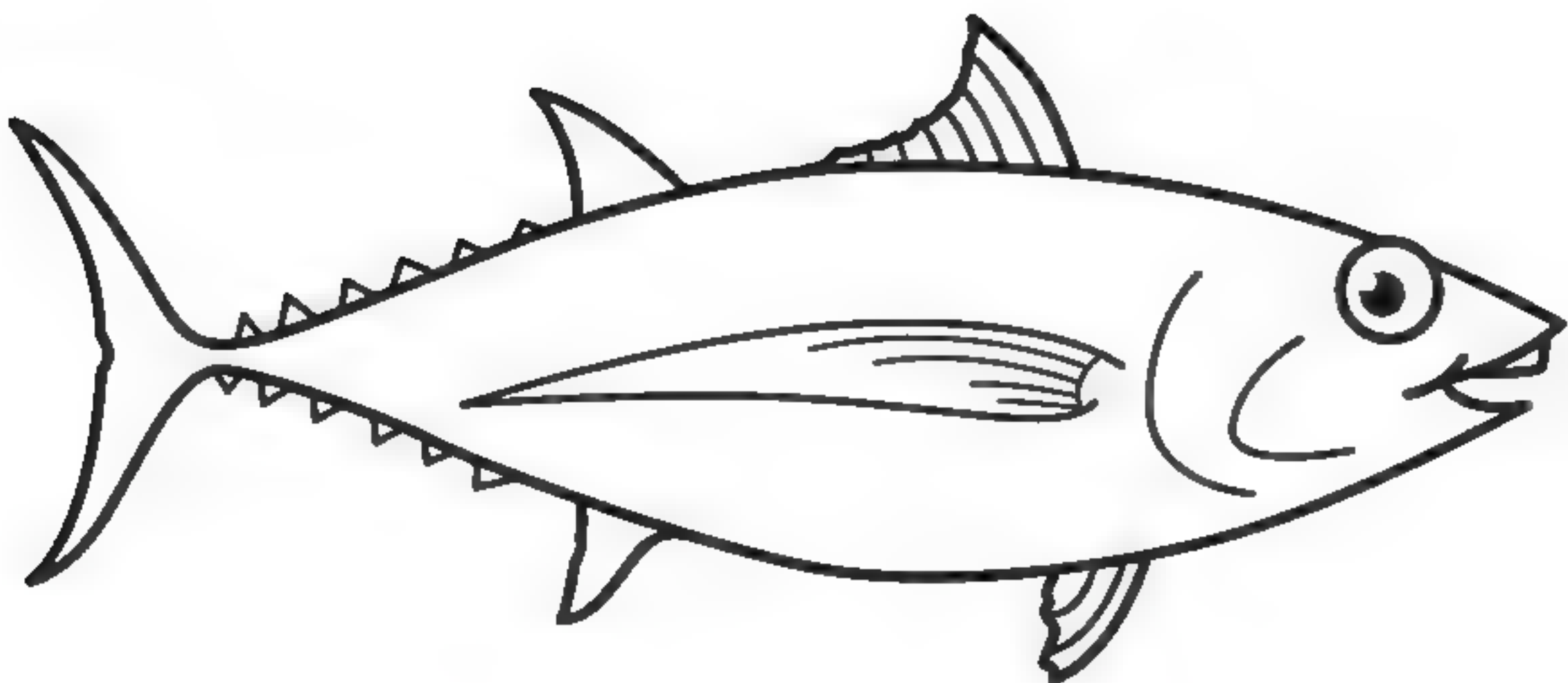
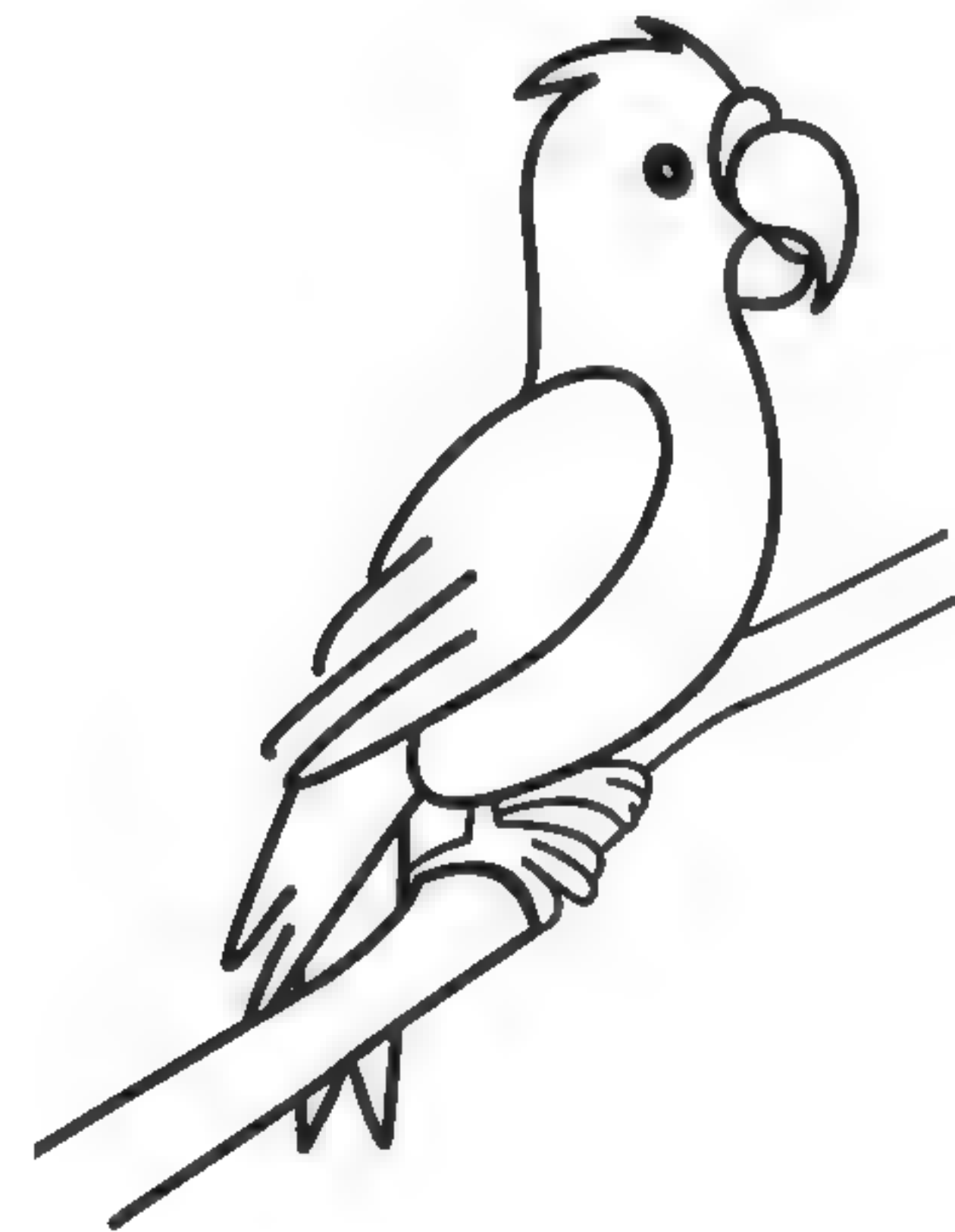
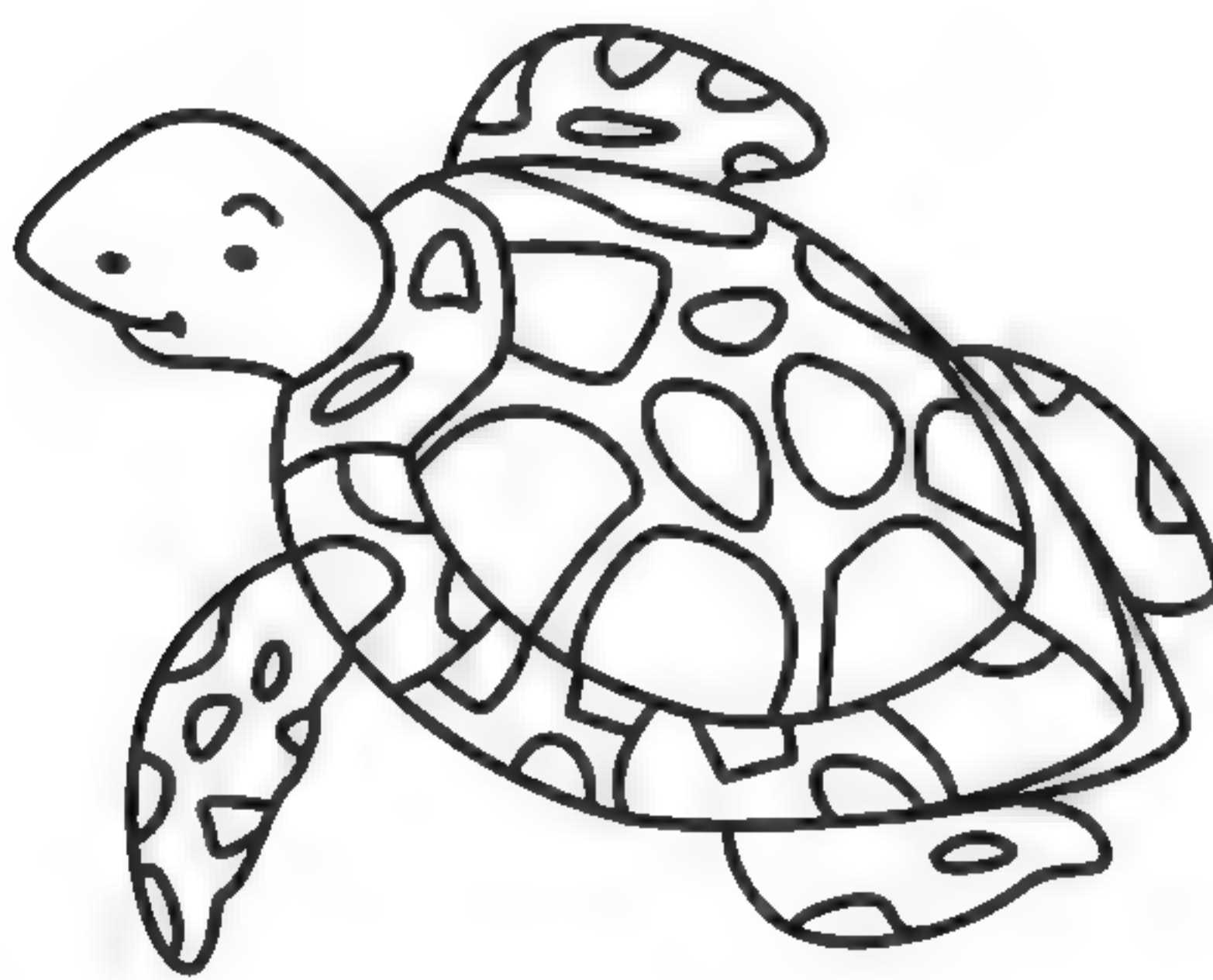
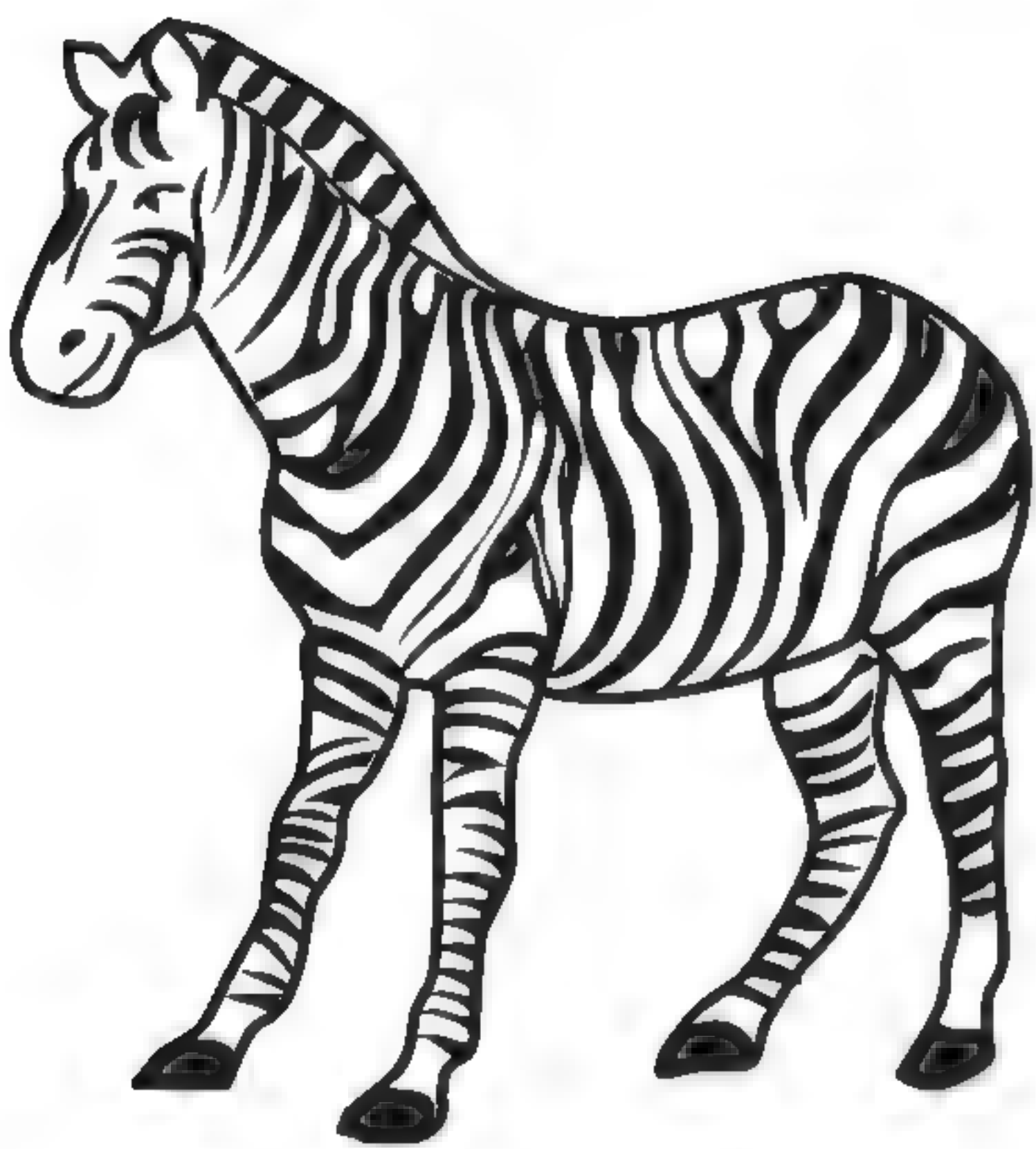
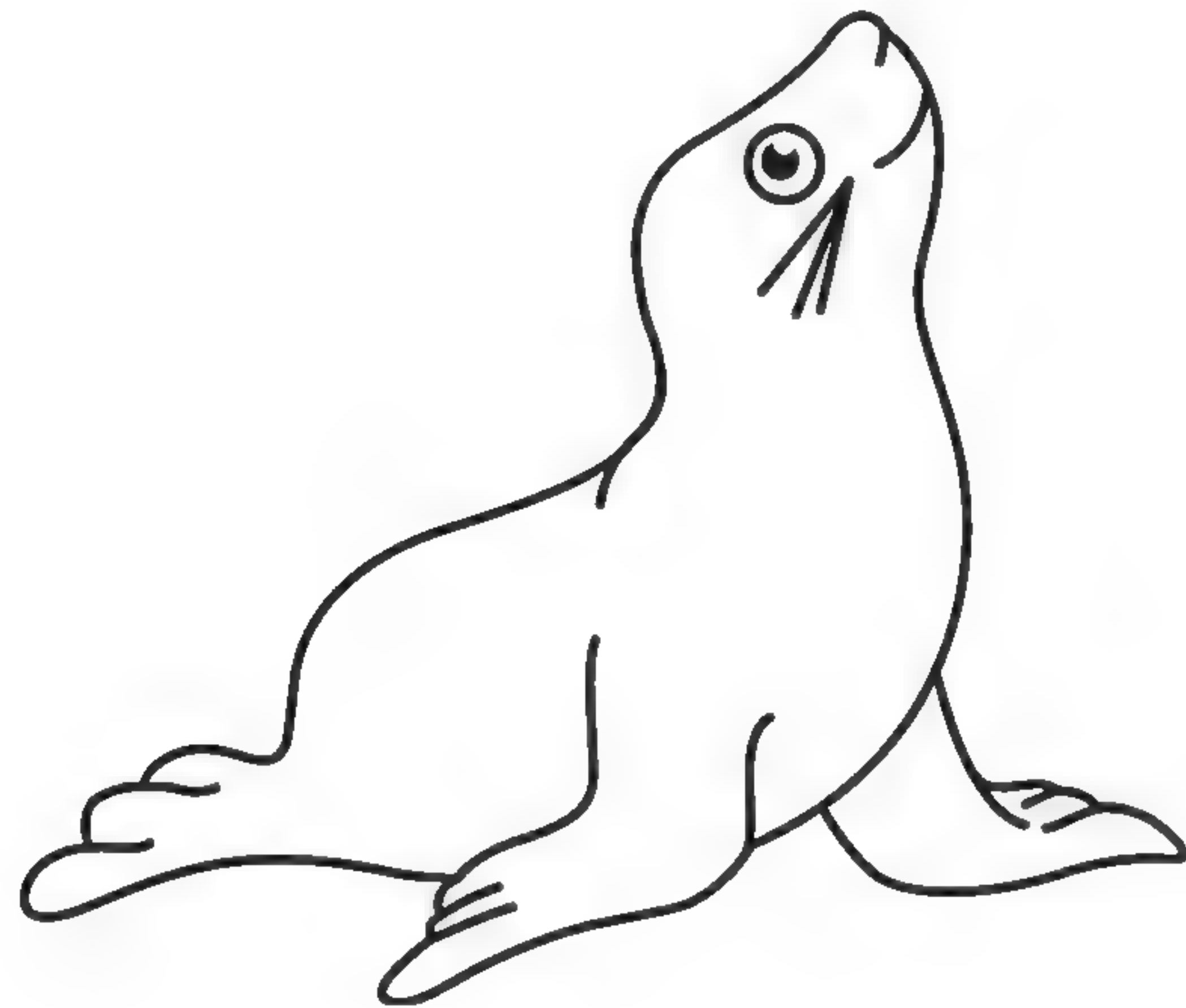
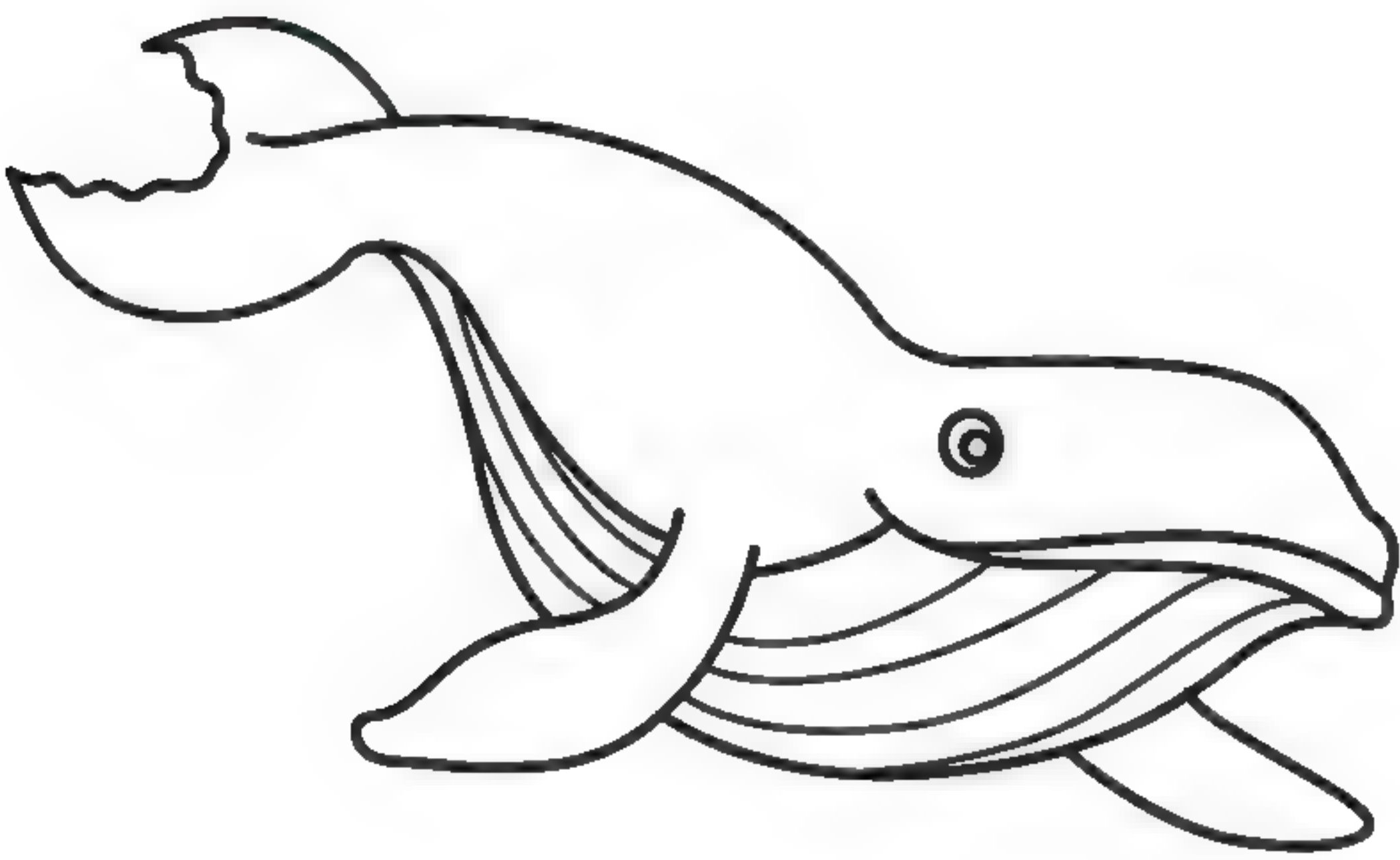


Living in Water

FACTS

Many animals live in water. They have special features, such as fins, flippers, smooth bodies, and flat tails, that help them swim.

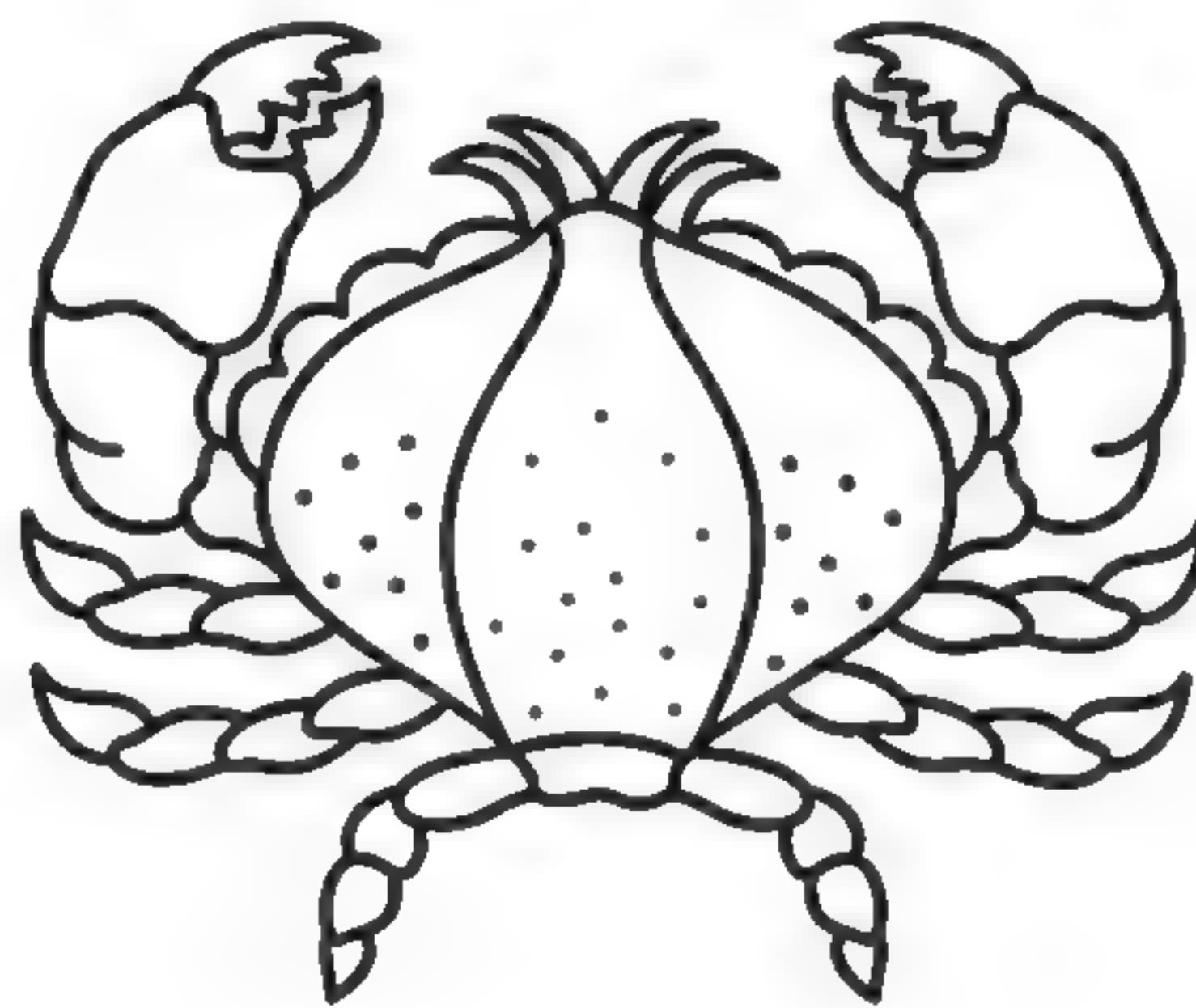
Look at the animals below. Circle those that live in water. Point to each animal and say what features it has to help it swim.



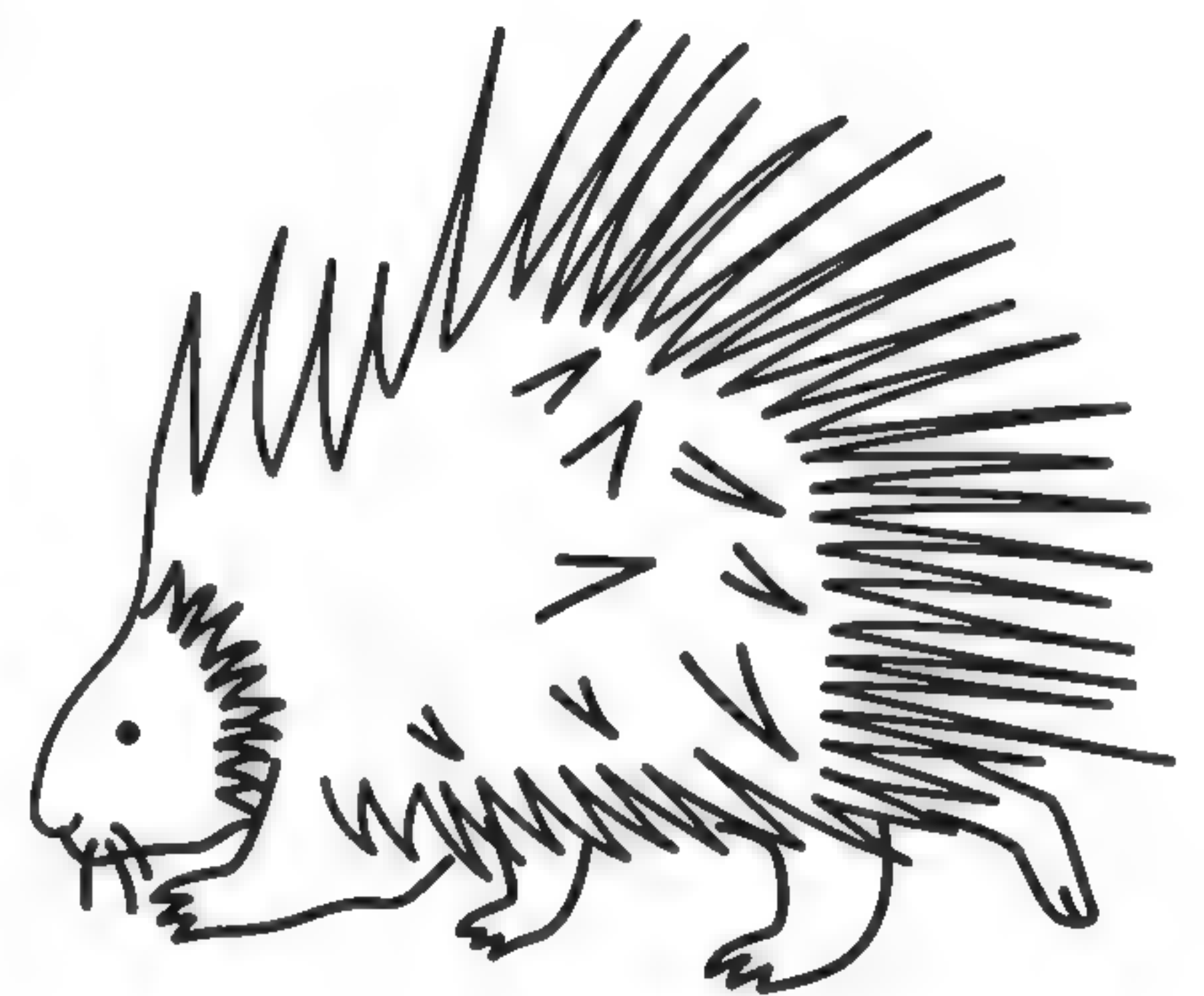


Different animals have different types of body coverings. Some animals are covered in hair, fur, or feathers, which keep the animal warm and dry. Others have scales, sharp quills, or a hard shell, which help protect the animal's body.

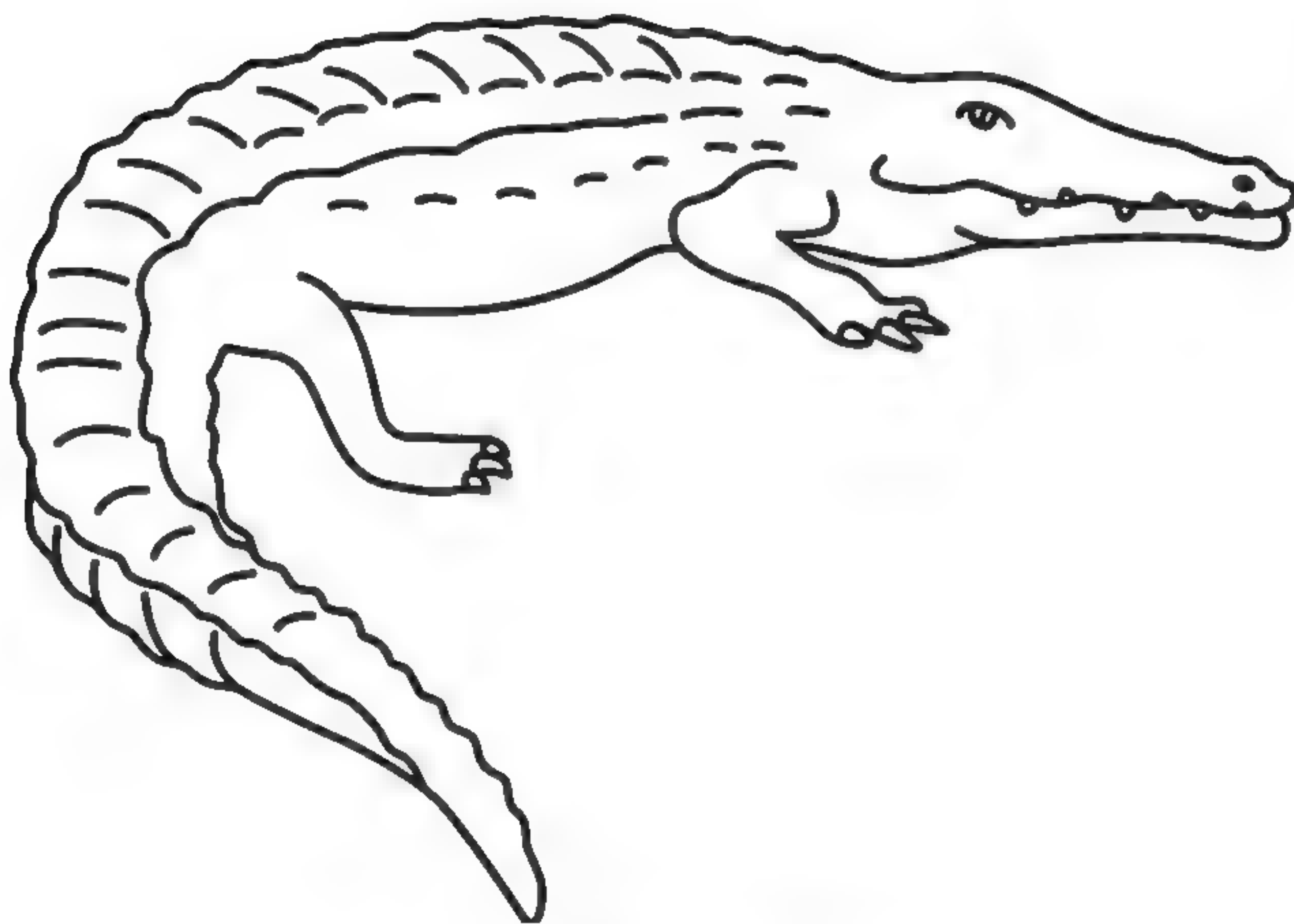
Look at the animals below. Draw a line between each animal and the word that describes the type of body covering it has.



Feathers



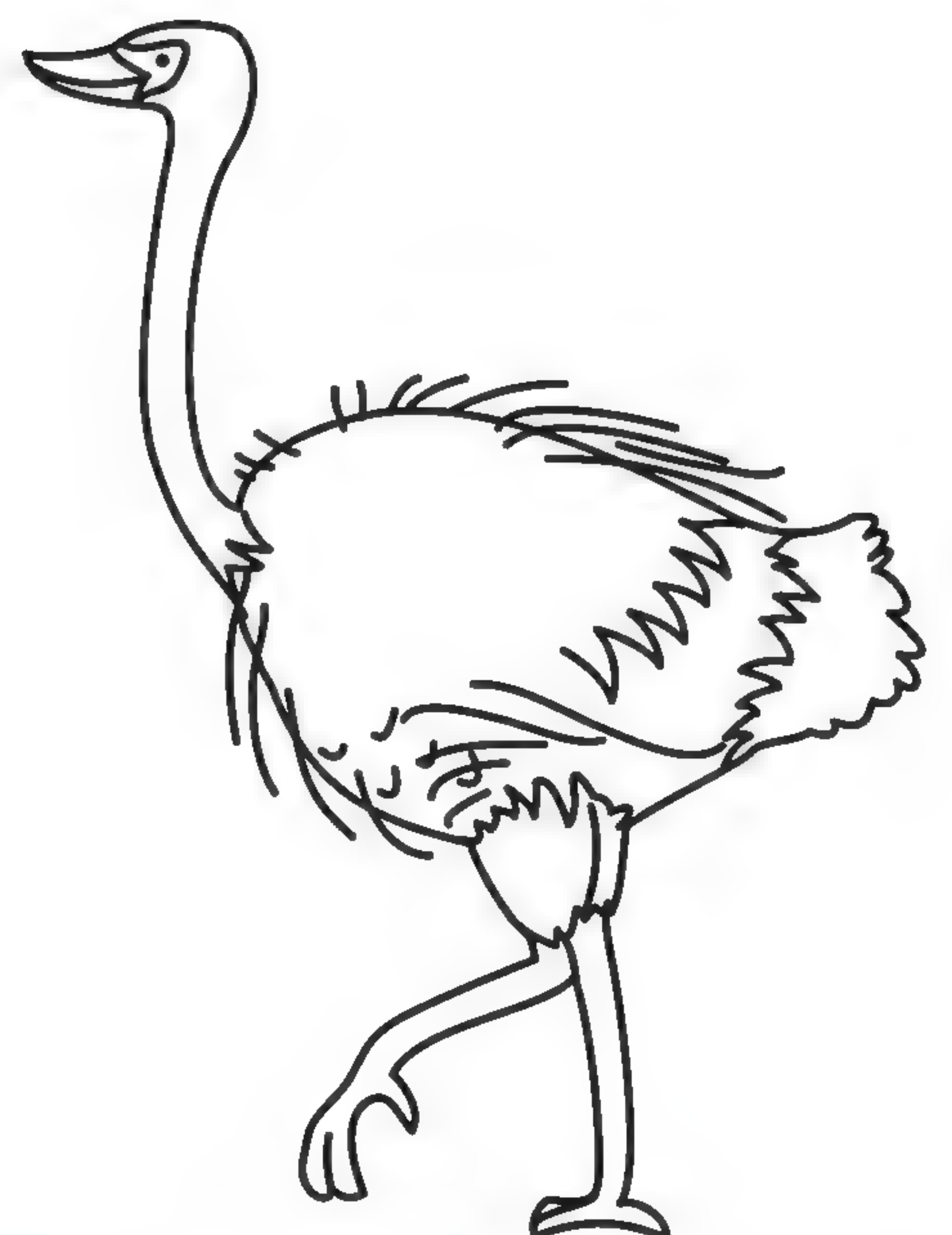
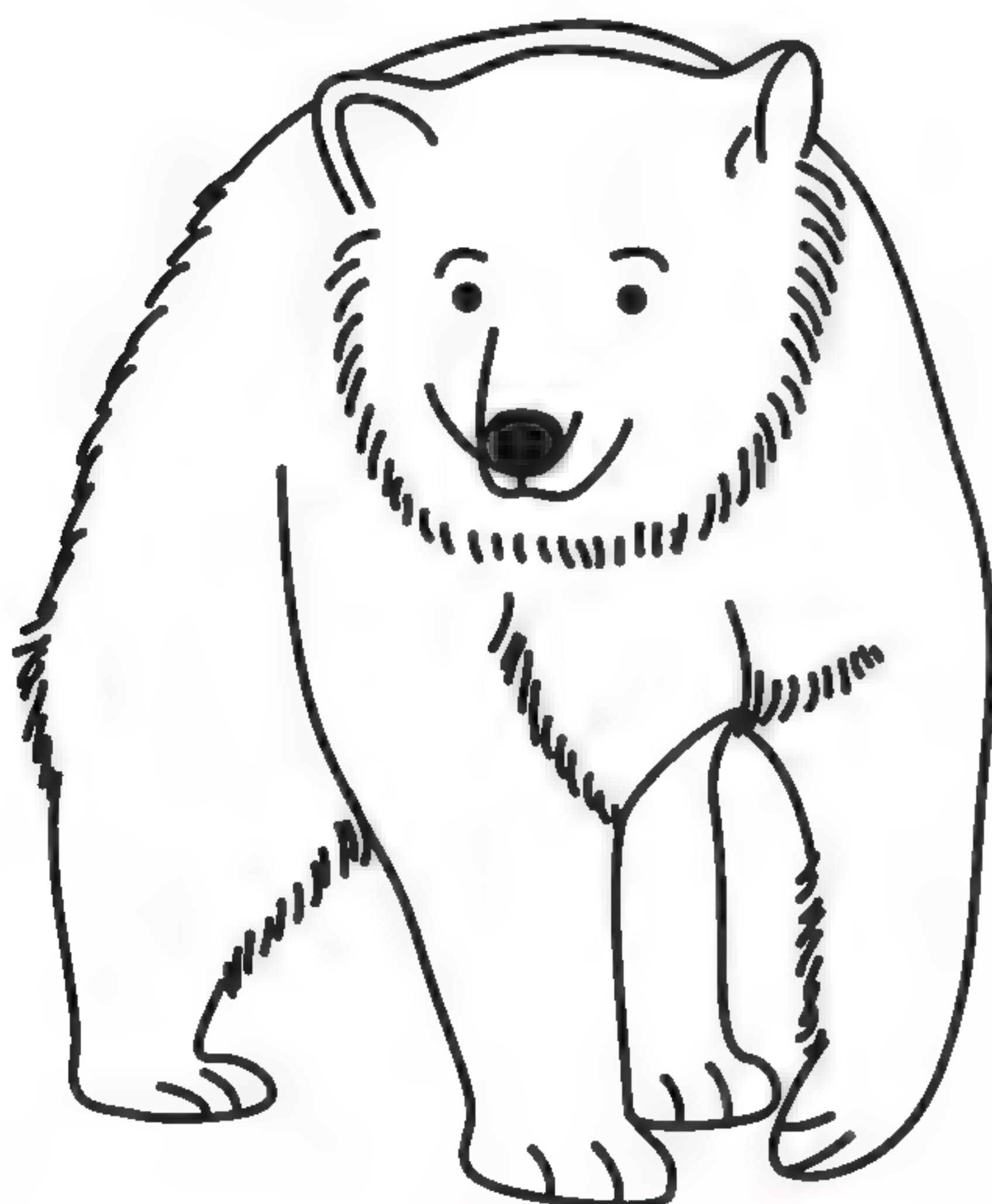
Shell



Fur

Quills

Scales



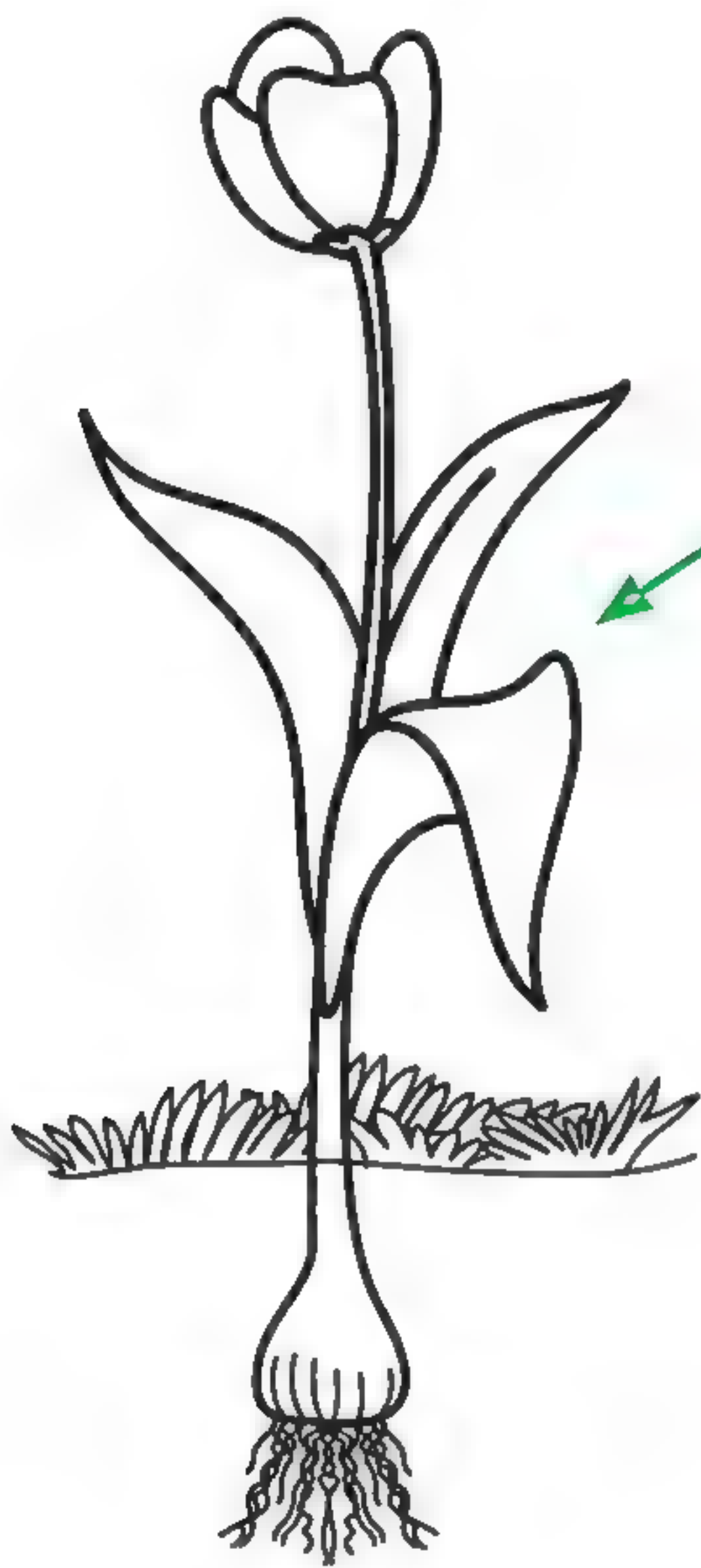


Forest Food Chain

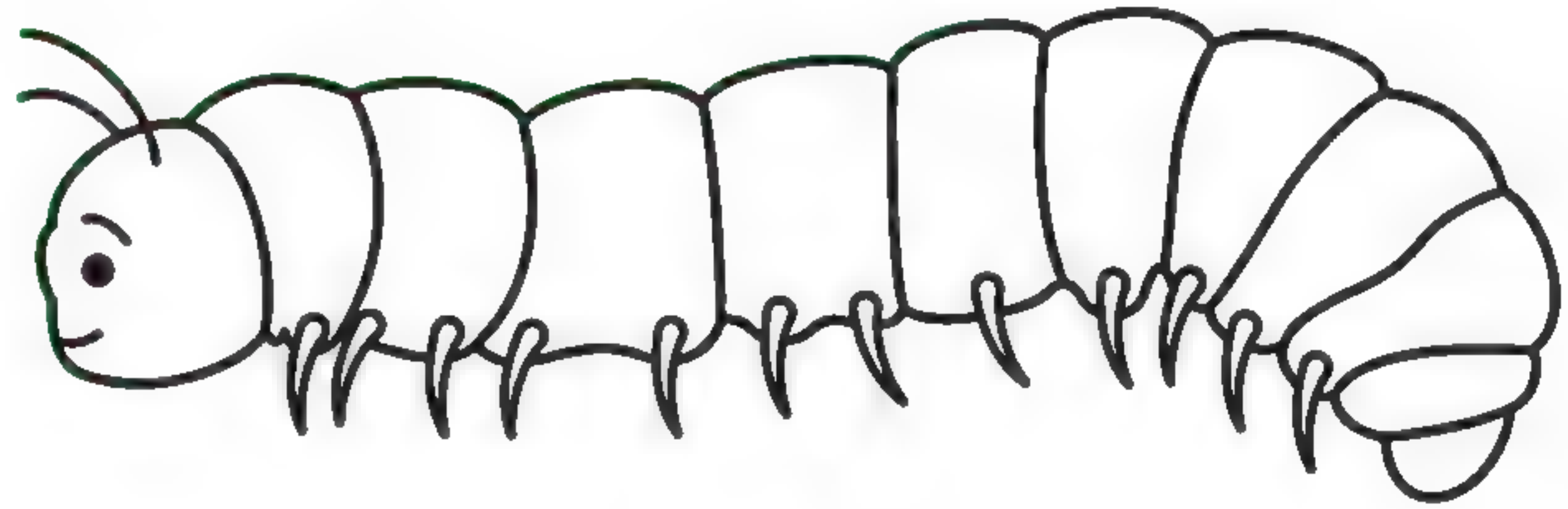
FACTS

A food chain shows how living things get food from the plants and animals around them. Food chains often start with a plant, which is eaten by an animal. Then that animal gets eaten by a bigger animal.

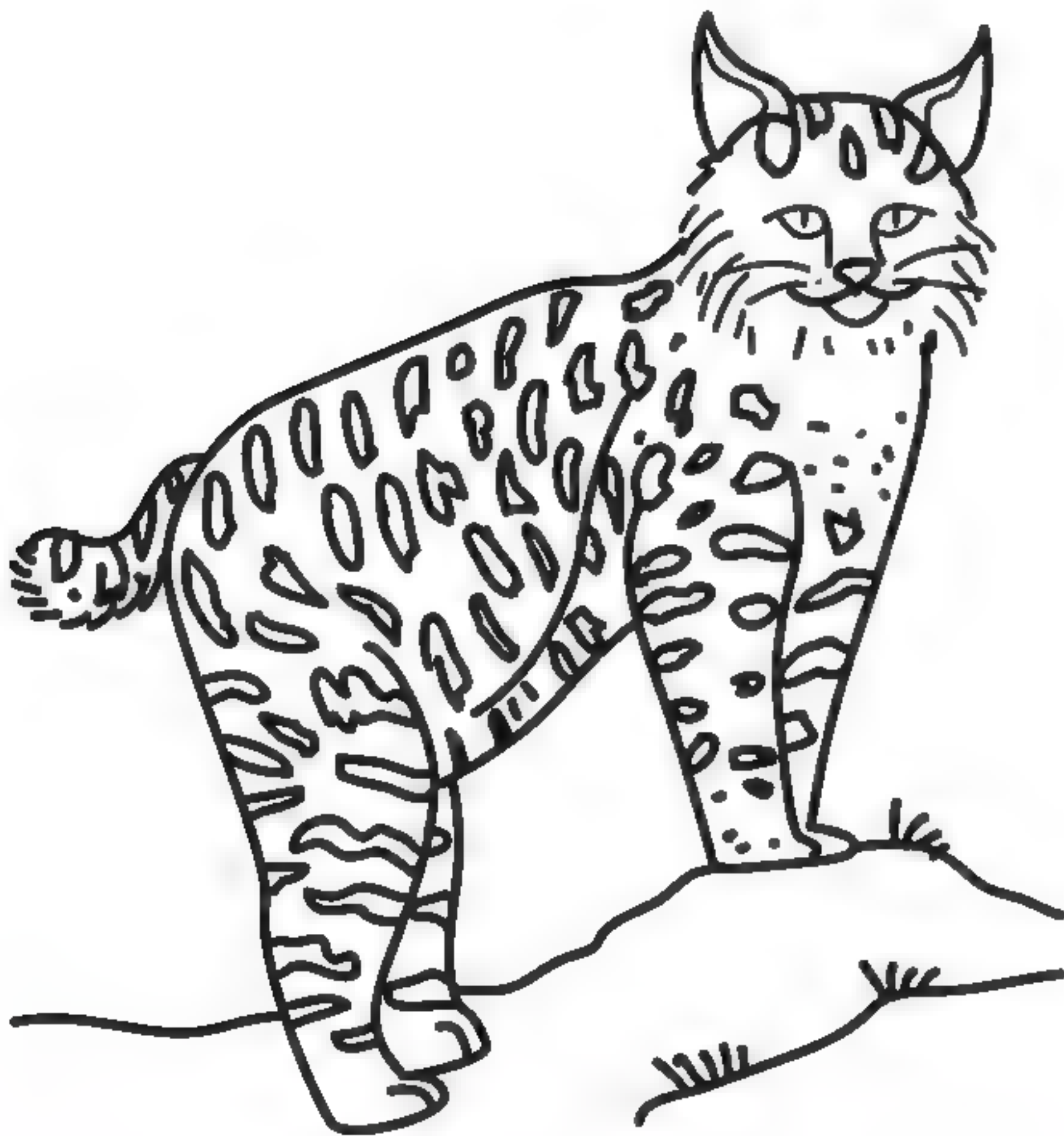
These four living things are part of a forest food chain. Like most food chains, this one begins with a plant. Draw arrows from one animal to the next, showing which animal eats which. **Hint:** Larger animals usually eat smaller animals.



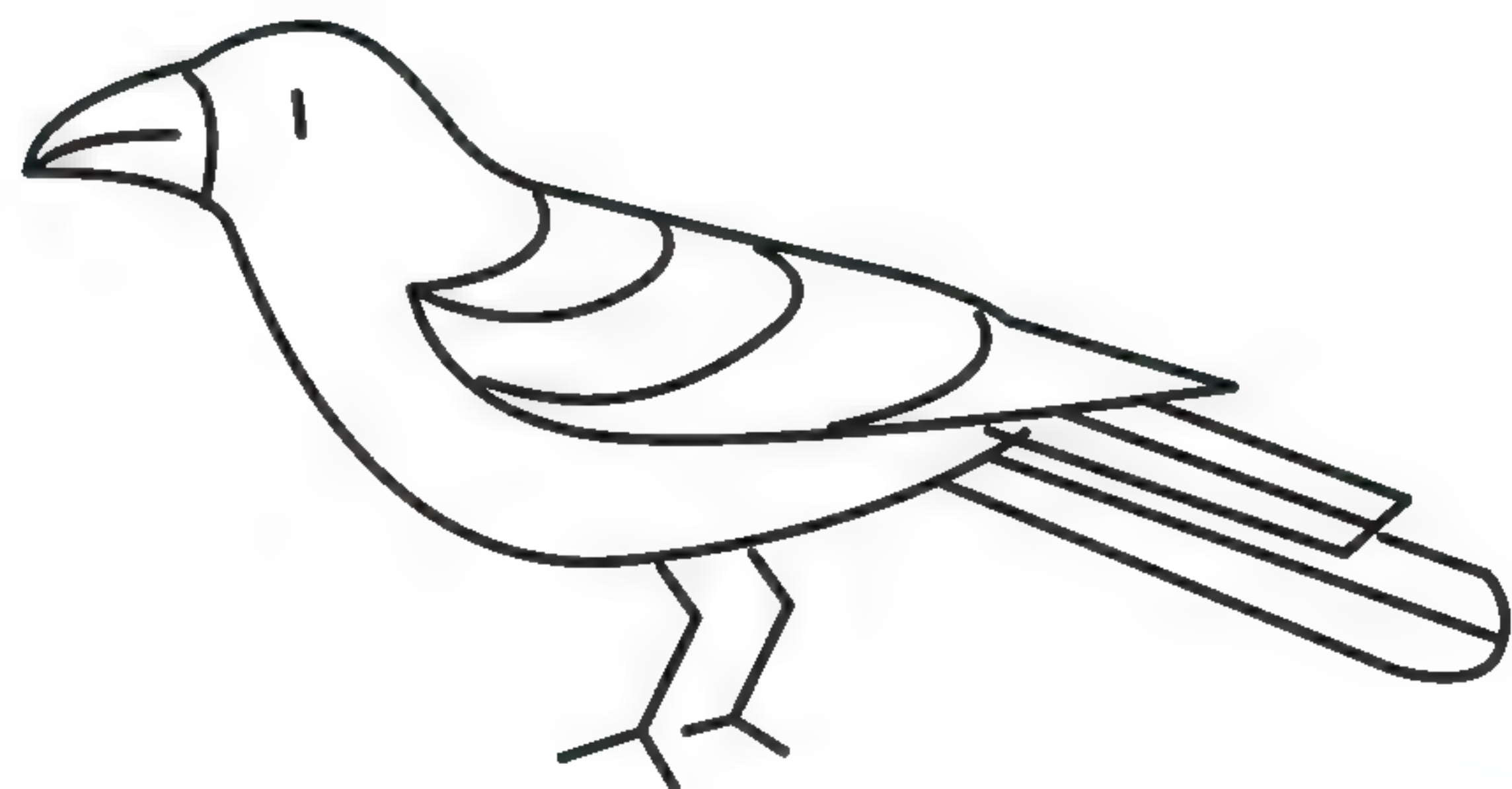
Plant



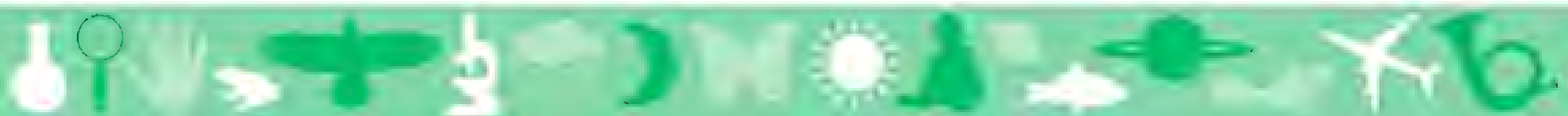
Caterpillar



Bobcat



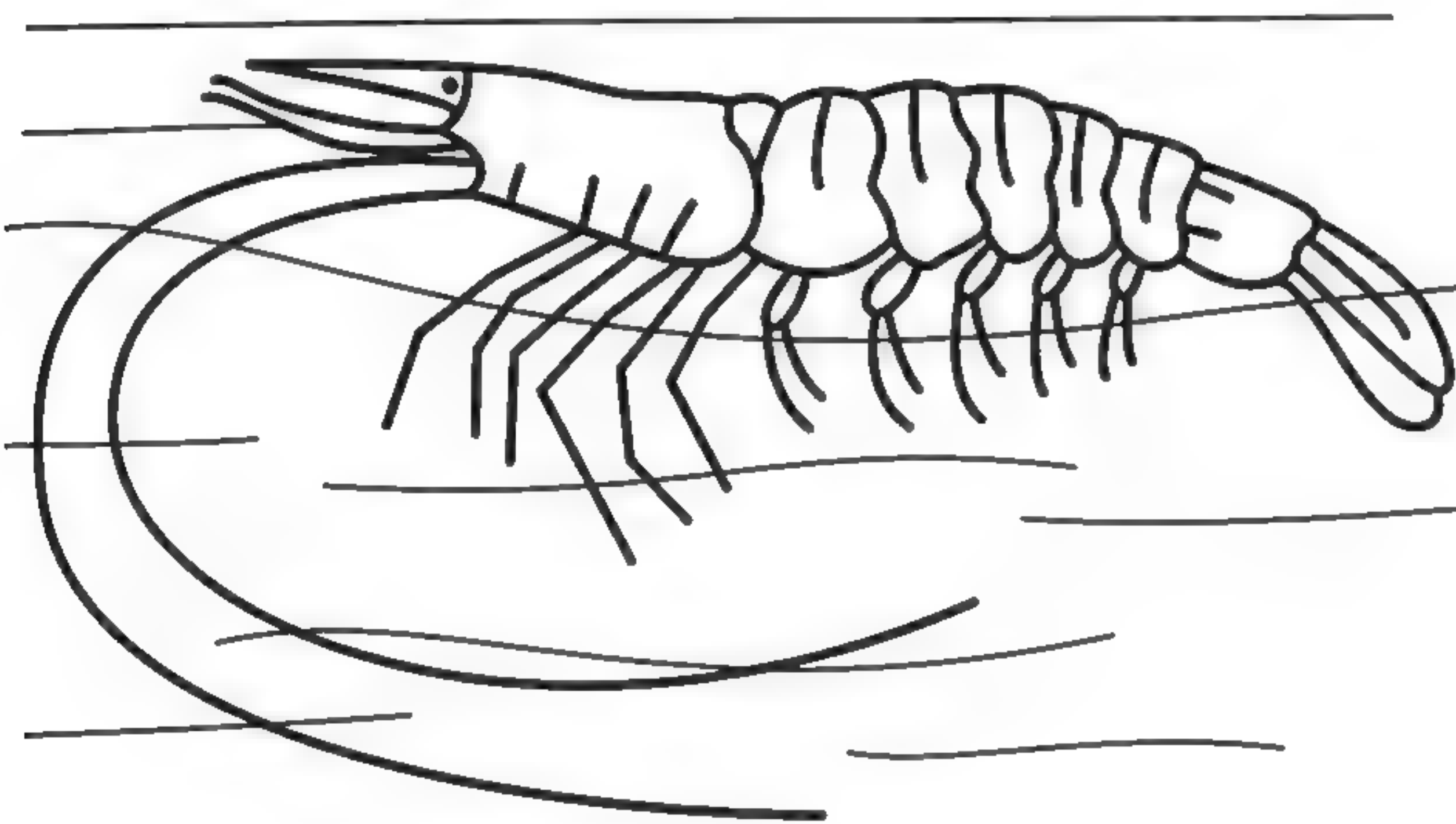
Small bird



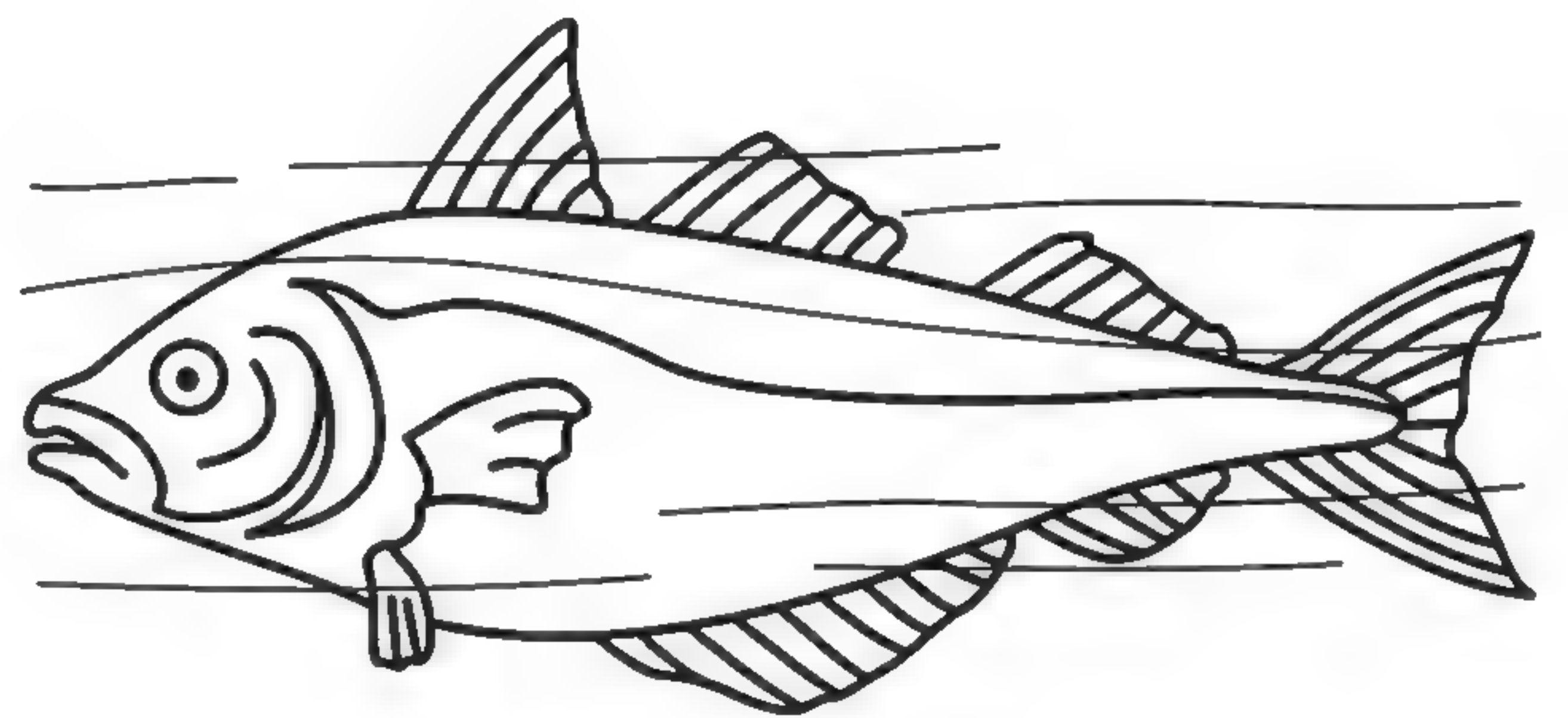


There are food chains in the ocean as well as on land.

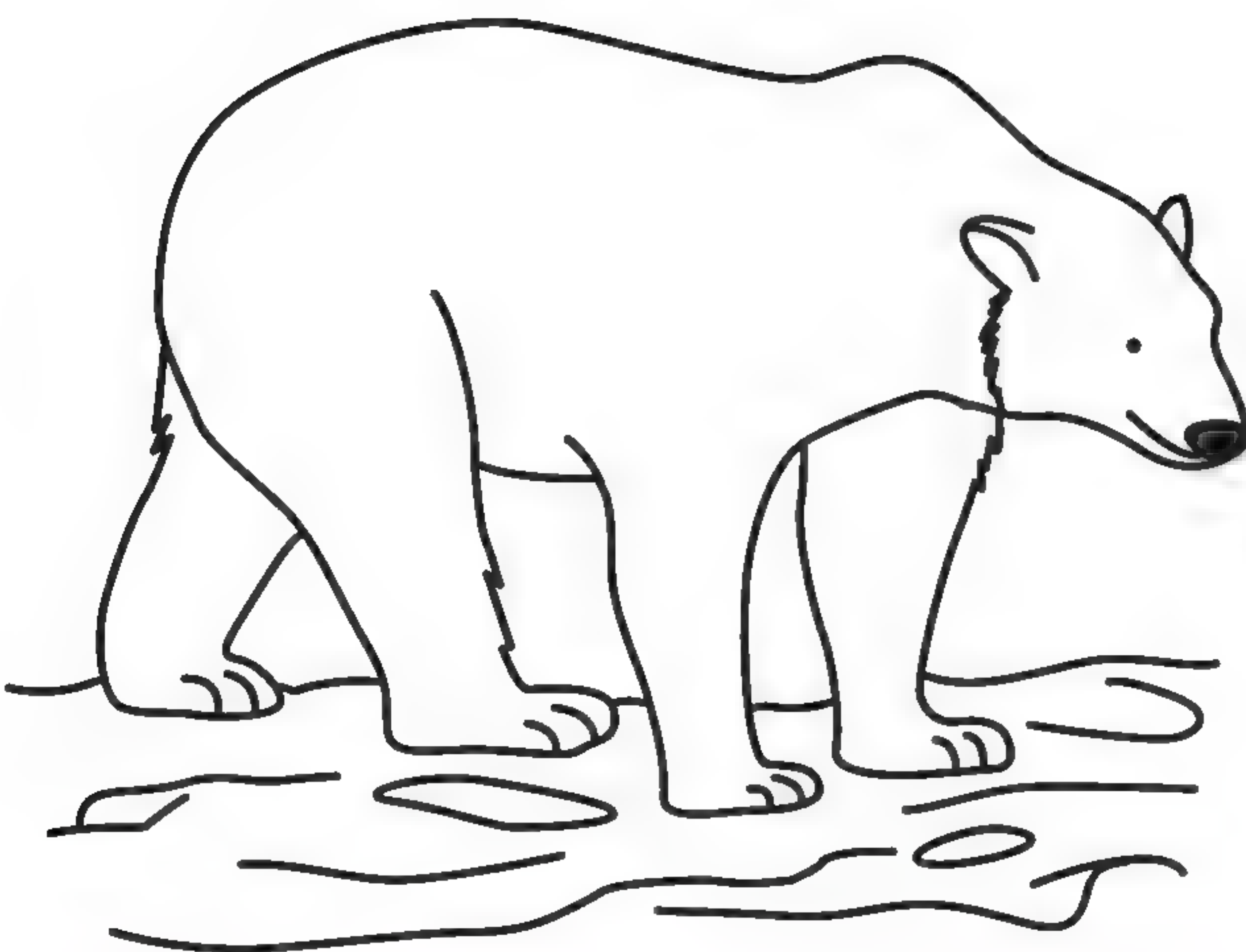
These four animals are part of an ocean food chain that starts with a shrimp. Draw arrows from one animal to the next, showing which animal eats which. **Hint:** Larger animals usually eat smaller animals.



Shrimp



Arctic cod



Polar bear



Seal



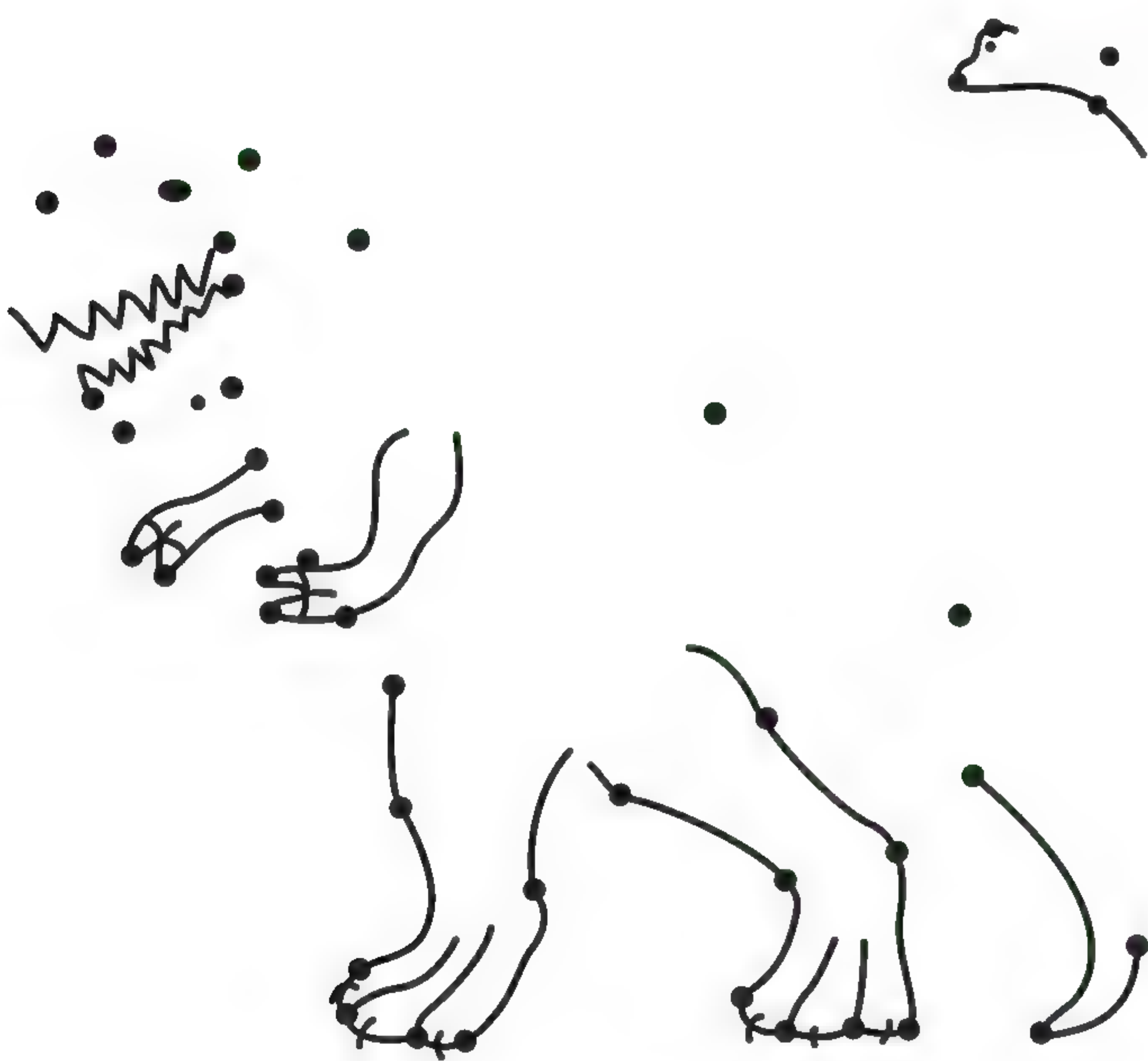


Dinosaurs

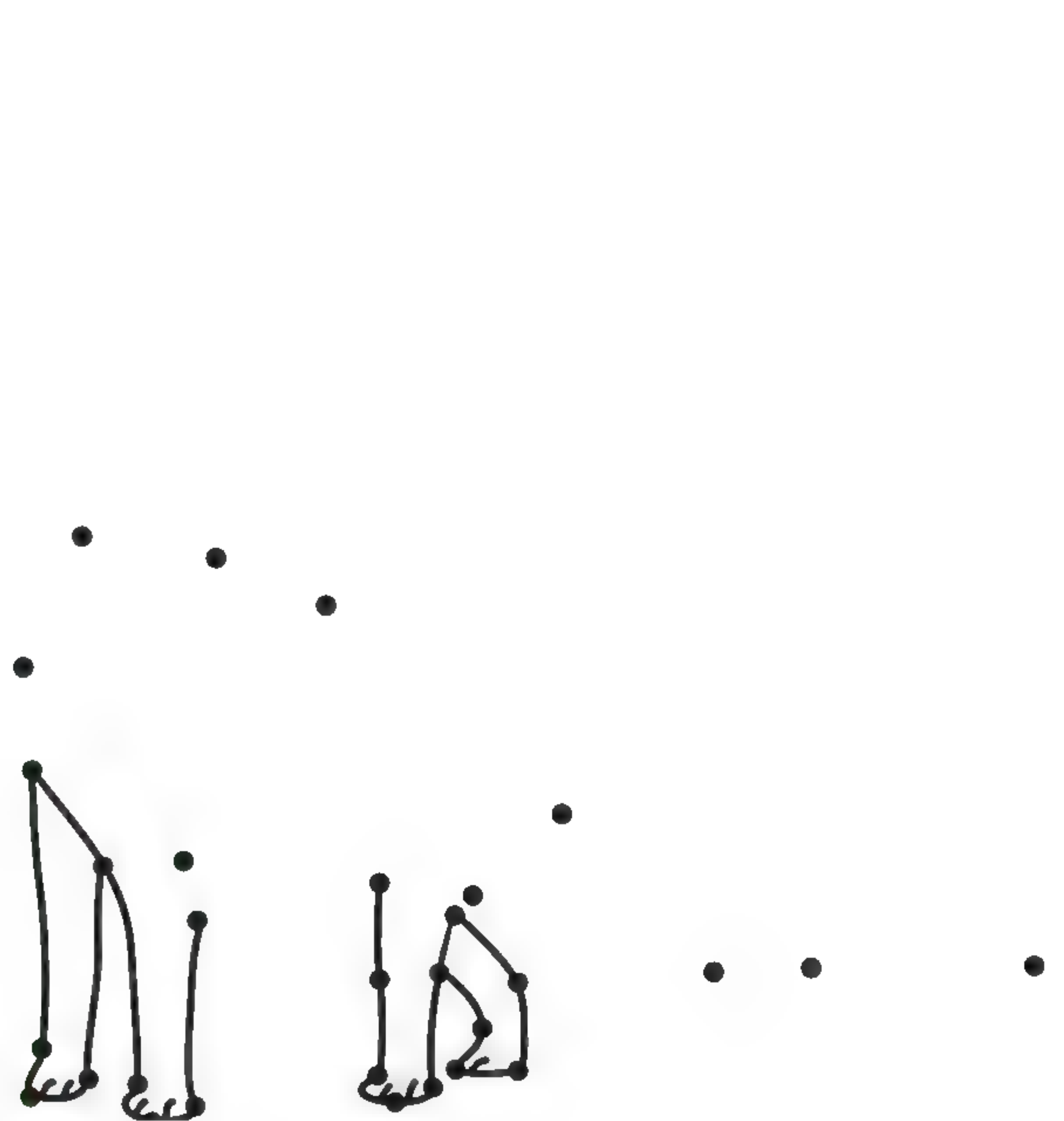
FACTS

Dinosaurs and other prehistoric animals lived millions of years ago. Scientists believe there were more than 1,000 different types. Tyrannosaurus rex was a huge fierce meat-eater with lots of sharp teeth. The long-necked Brachiosaurus fed on leaves high up in the trees. Other animals, like Pterodactylus, had wings and could fly.

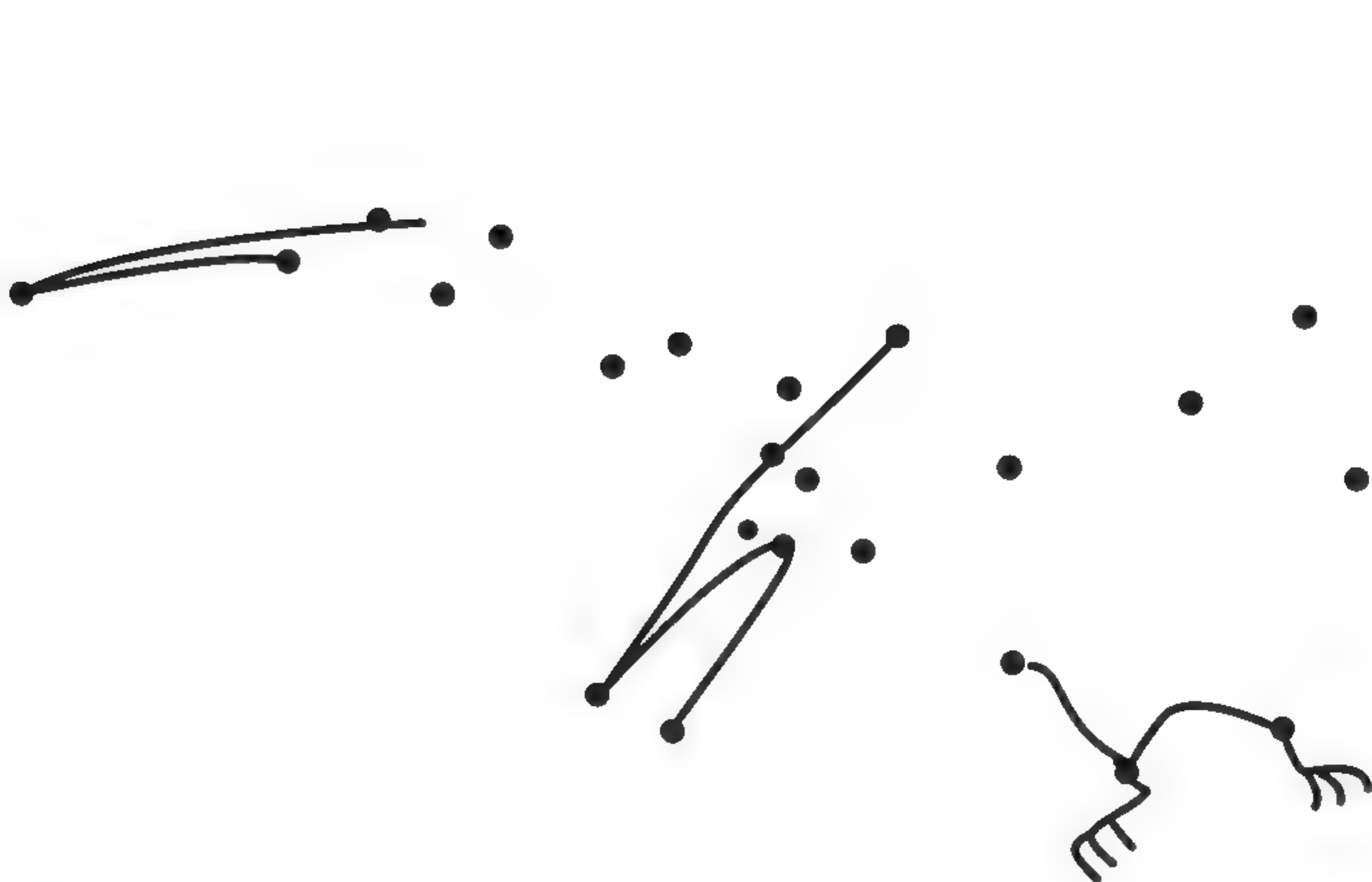
Connect the dots to reveal the prehistoric animals. Then color them.



Tyrannosaurus rex



Brachiosaurus



Pterodactylus



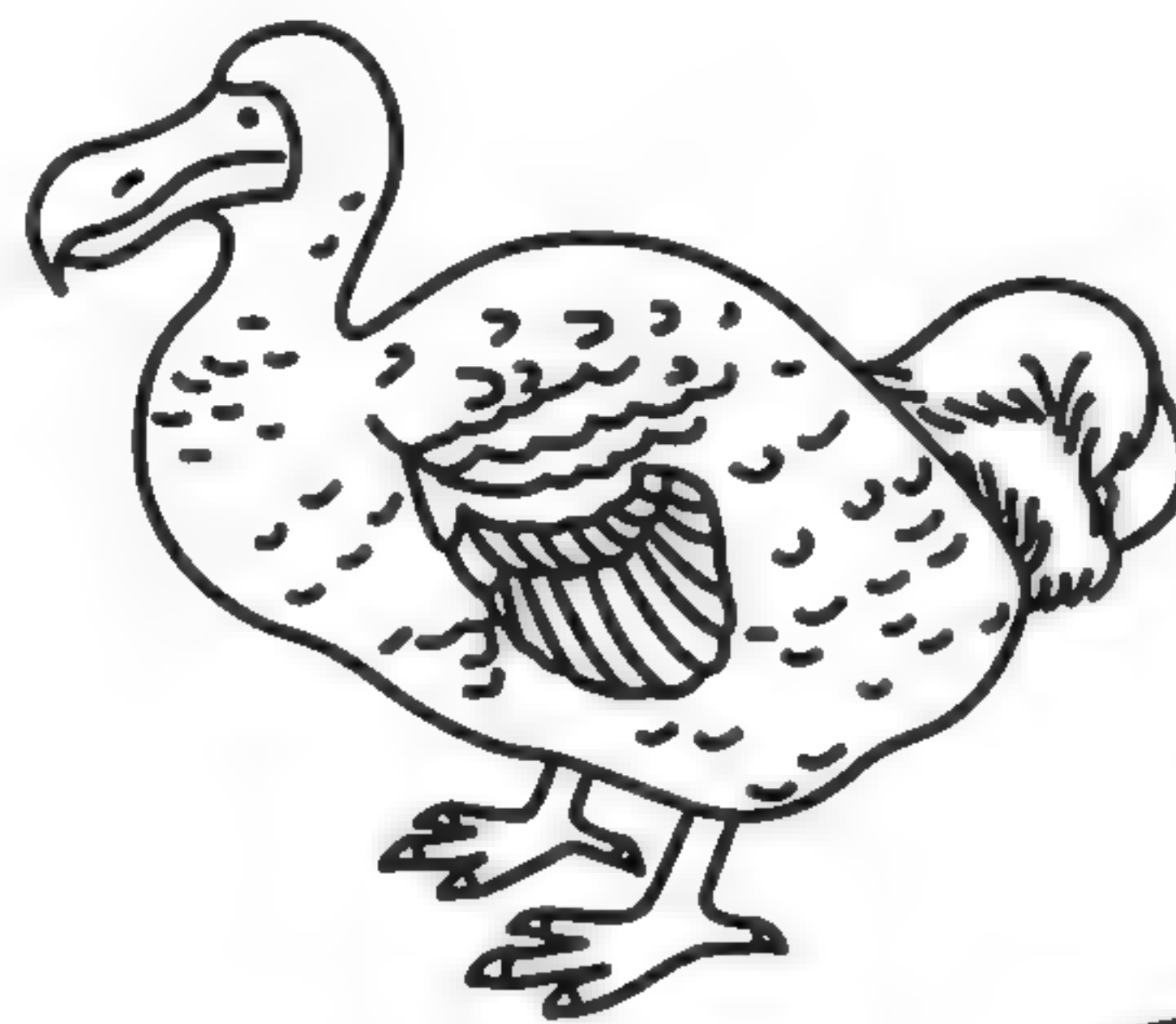


Sometimes whole groups of animals die out and no longer appear anywhere on Earth. These animals are called extinct. Many animals alive today are related to animals that are now extinct.

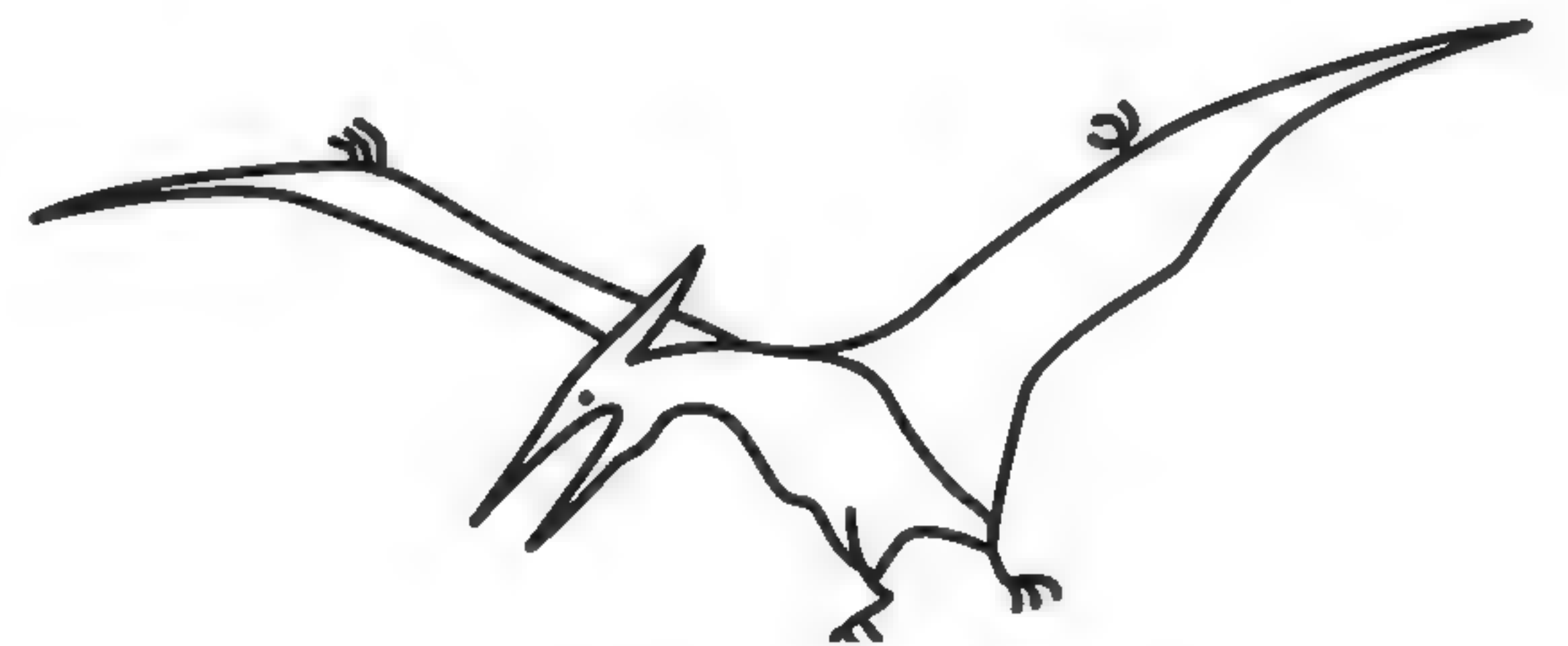
Look at the pictures of animals below. Circle those that are still alive today. Now point to the animals you did not circle. Those animals are extinct.



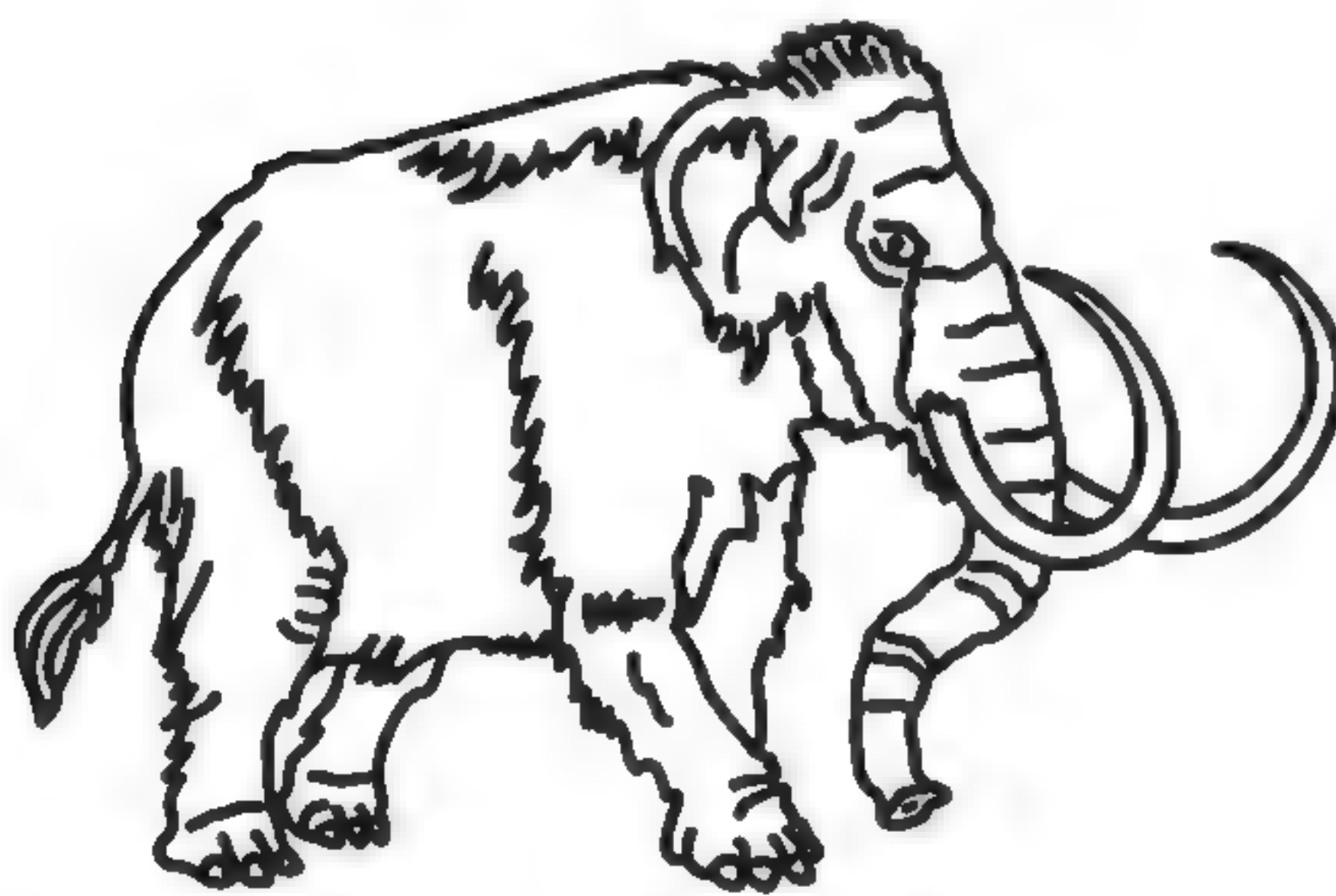
Chickadee



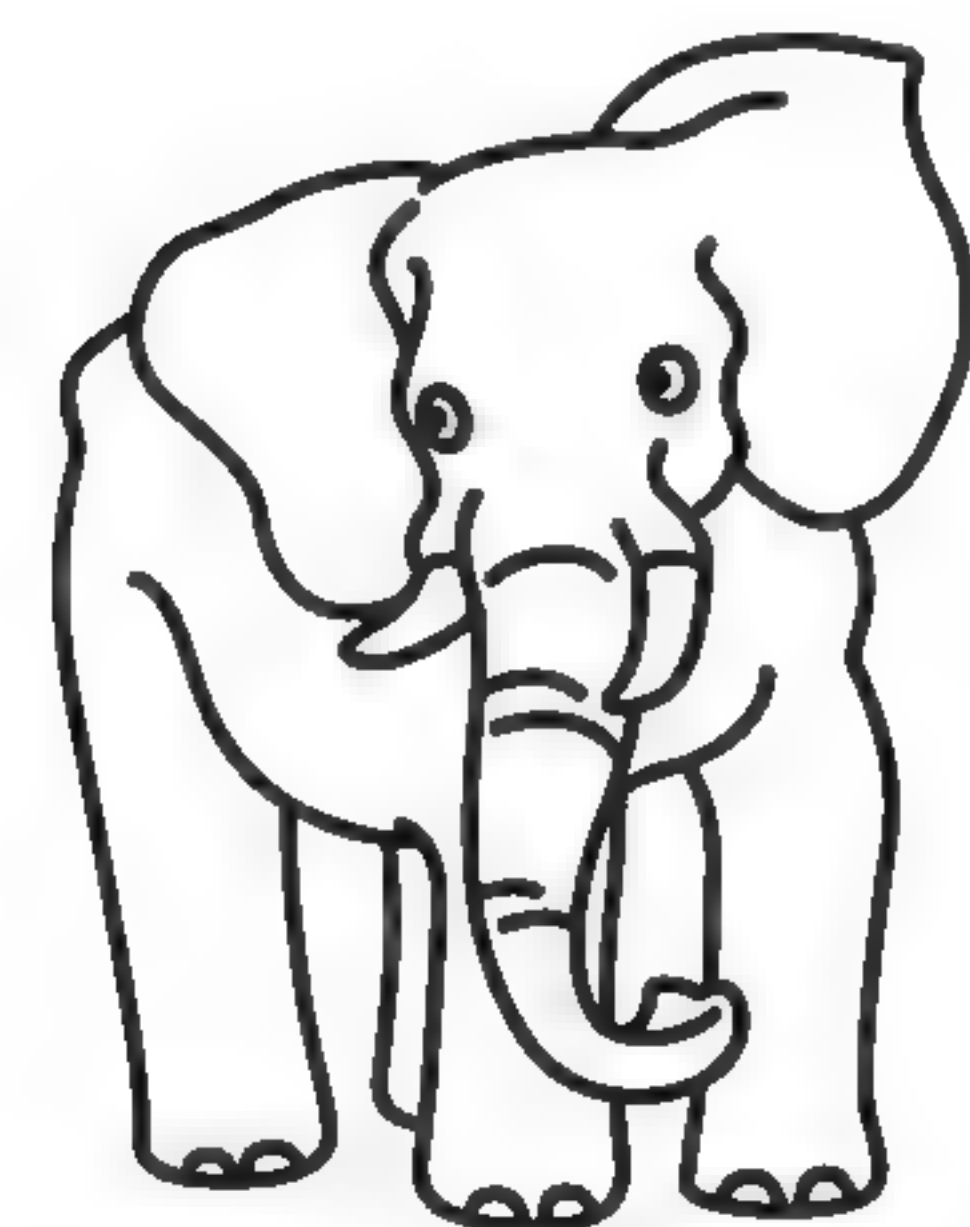
Dodo



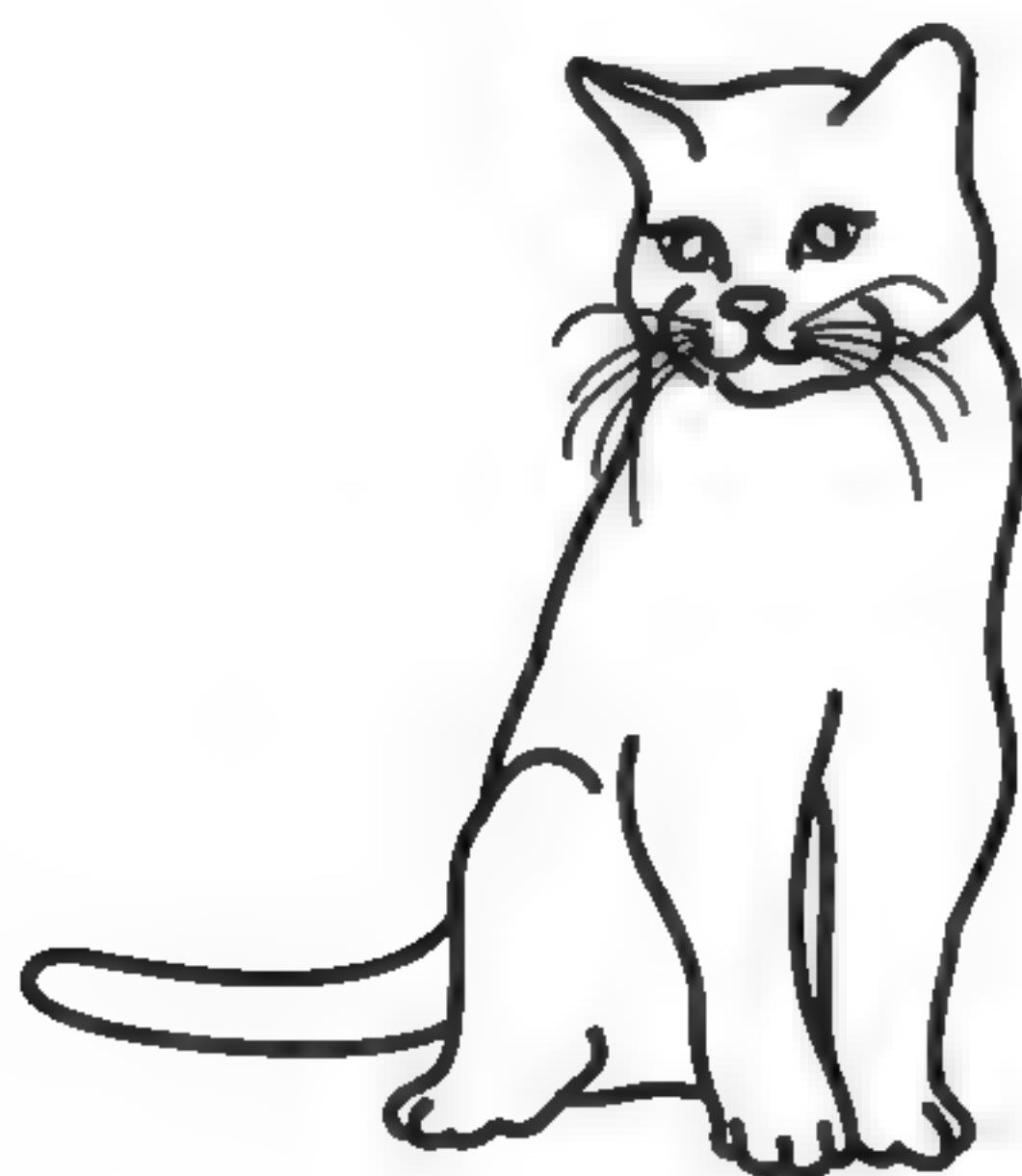
Pterodactylus



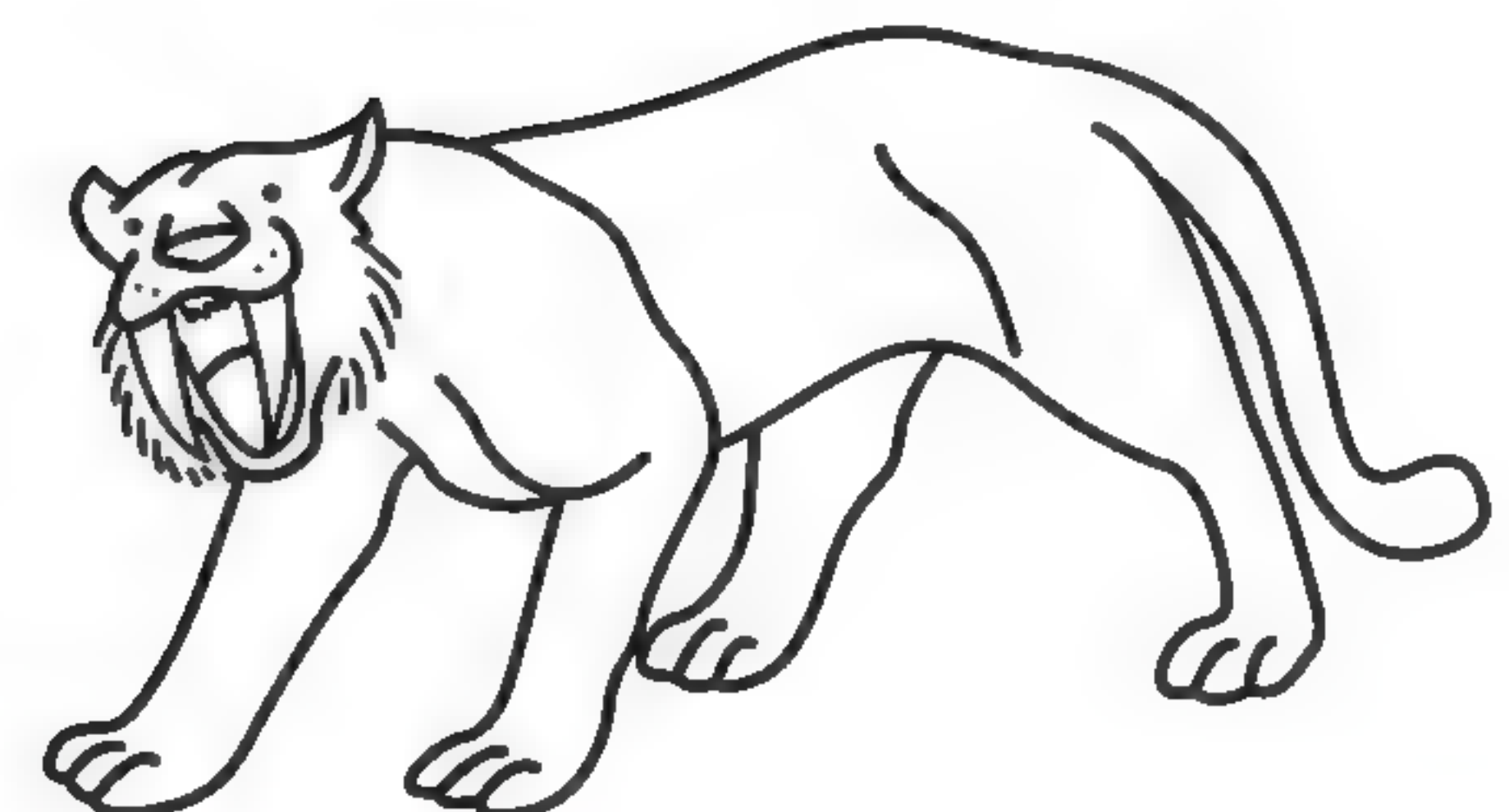
Woolly mammoth



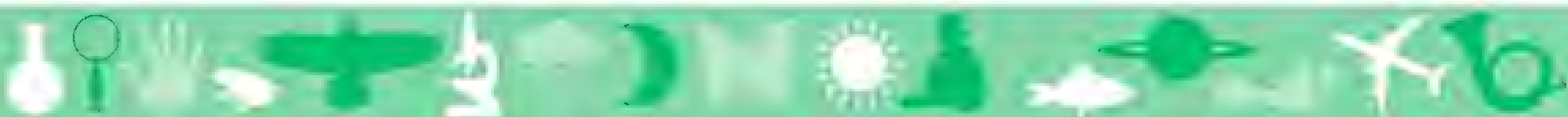
Elephant



Cat



Saber-toothed cat



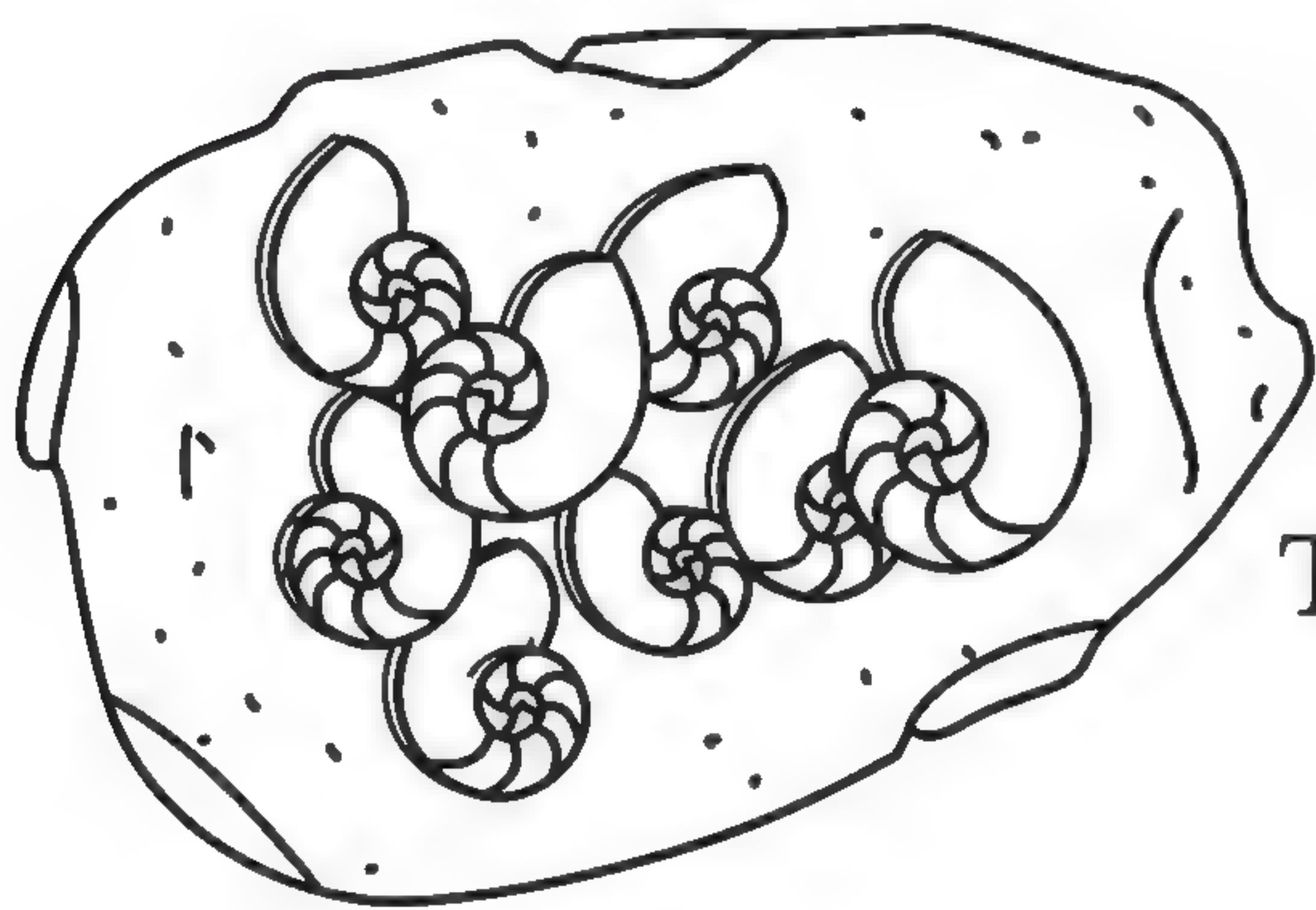


Fossils

FACTS

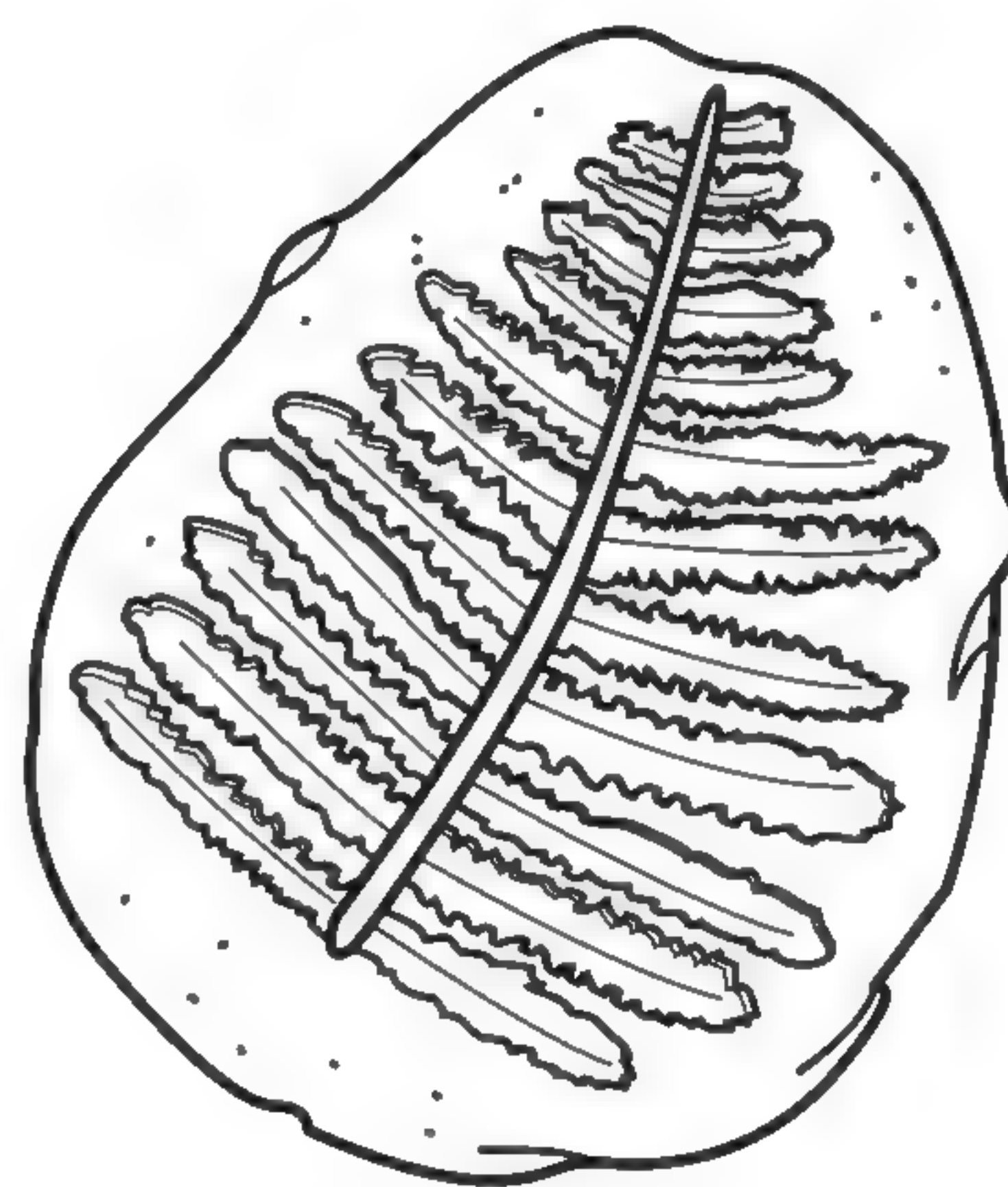
A fossil is the remains of a plant or animal that has been preserved in rock. There are different types of fossils: footprints and plants can make impressions—or indents—in rock. Shells, skeleton, and teeth can be preserved in the rock.

Read the list of different types of fossils given below. Draw a line between the name of each type of fossil and the correct picture.

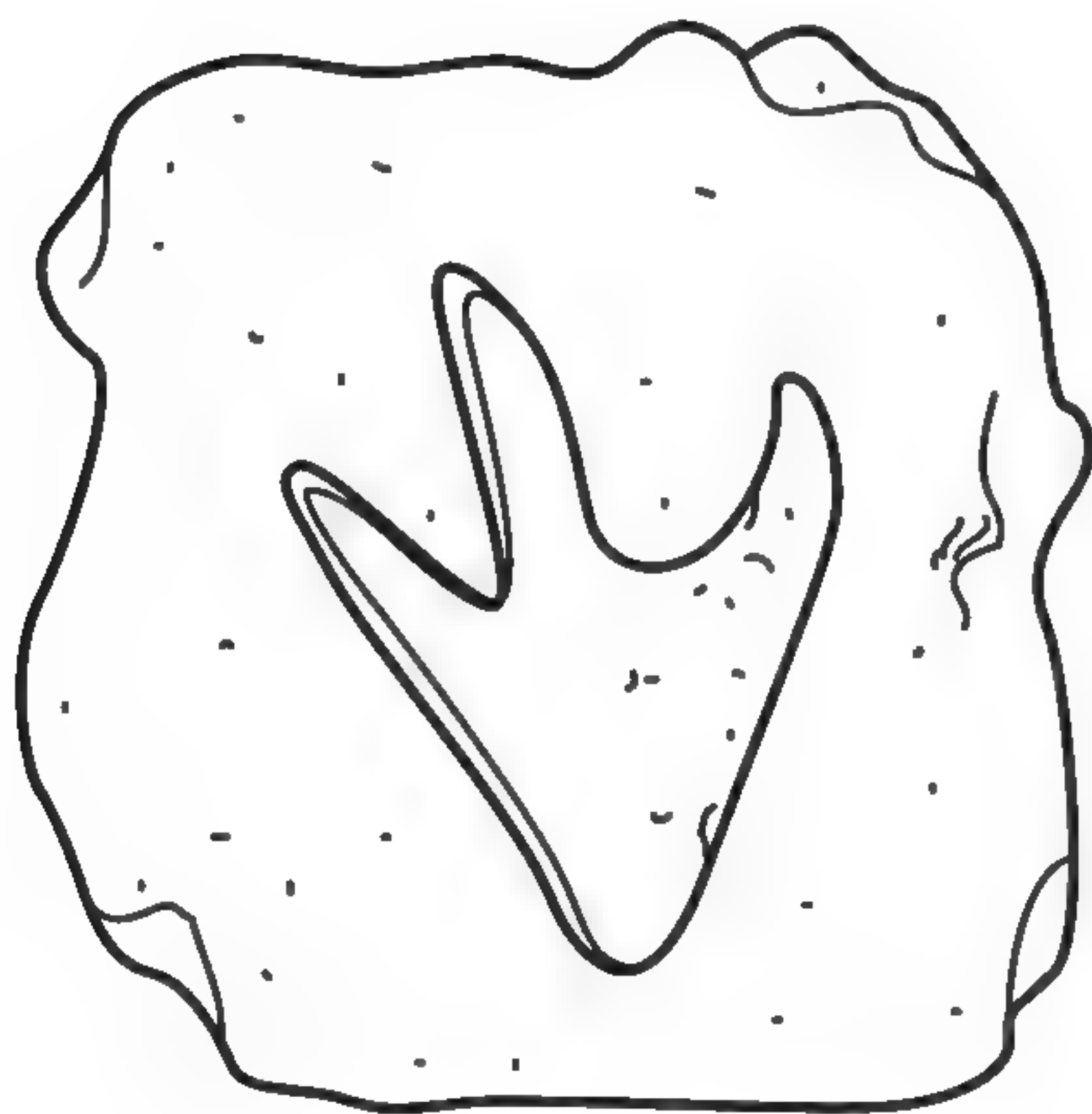


Types of Fossils

Skeletons



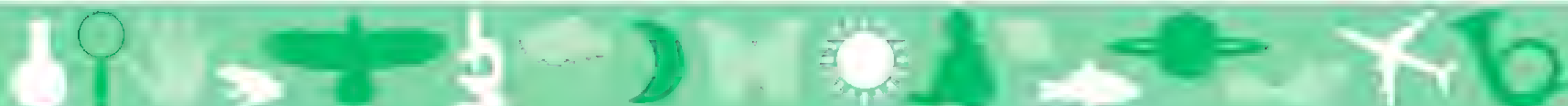
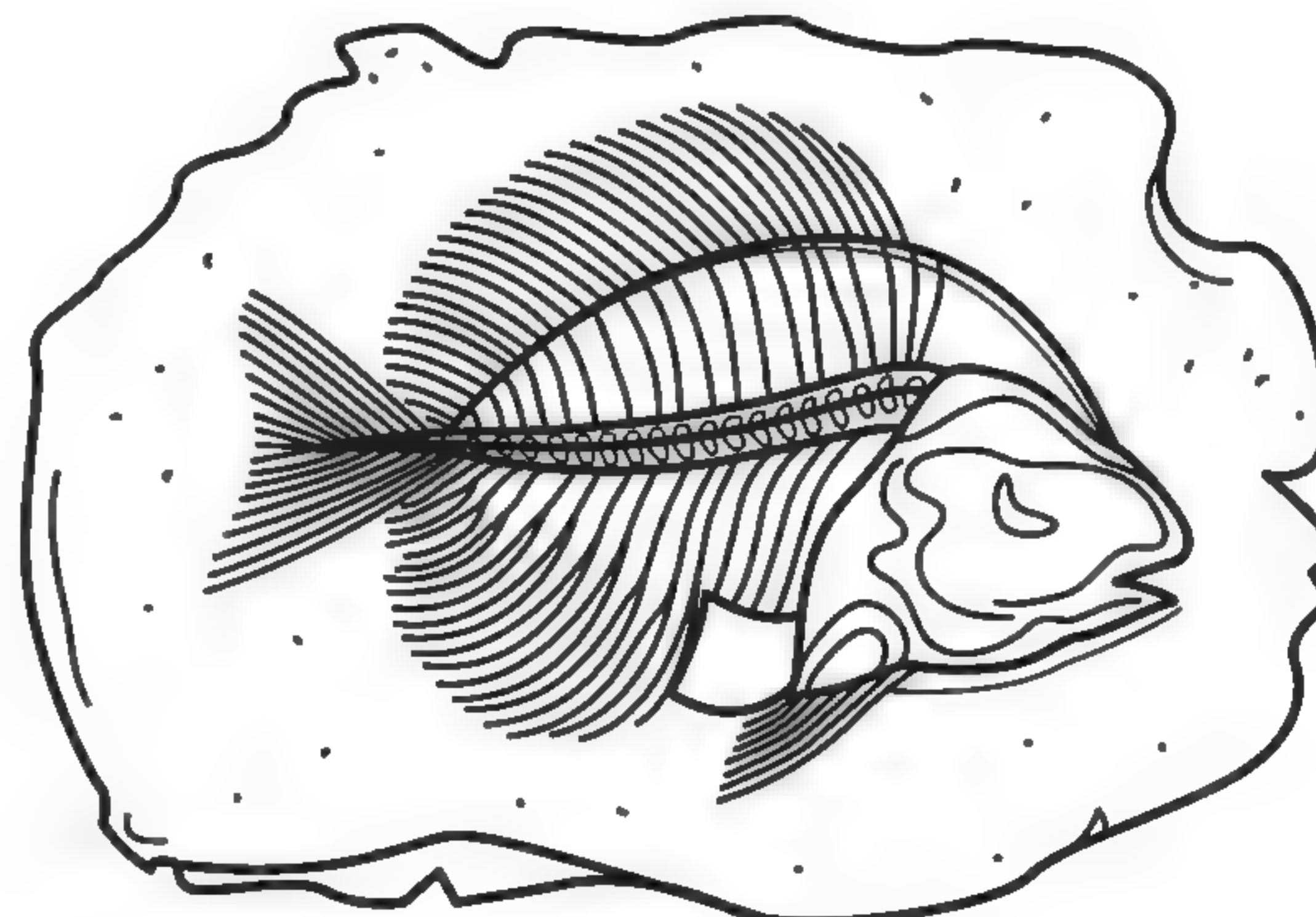
Plants



Dinosaur footprints

Shells

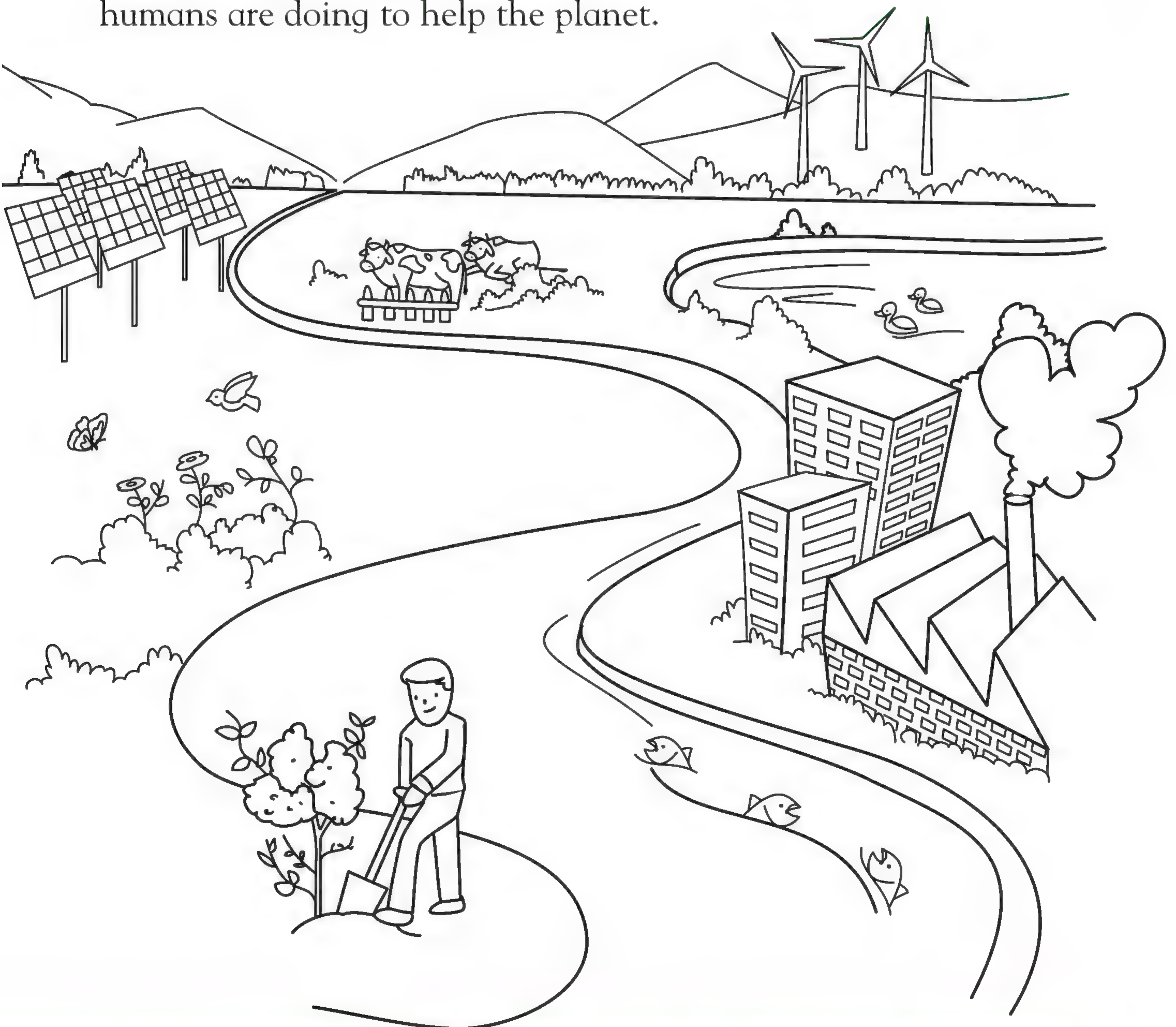
Teeth





Humans, plants, and animals share Earth. We need to take care of Earth so that plants, animals, and humans can survive and flourish. There are many ways to take care of Earth. We can recycle metal, plastic, and glass. We can plant trees and flowers. We can use energy from the sun—called solar power. We can use windmills to capture energy from the wind.

Look at the picture. Circle all the things that humans are doing to help the planet.





Natural Resources

FACTS

Natural resources are things that naturally occur on Earth, which we can use to make other things. Wood is a natural resource that we use to make furniture, buildings, and paper. Oil from deep underground gives us fuel. Water is used for drinking. Sheep give us wool.

Draw a line from each natural resource to the product that is made from it.

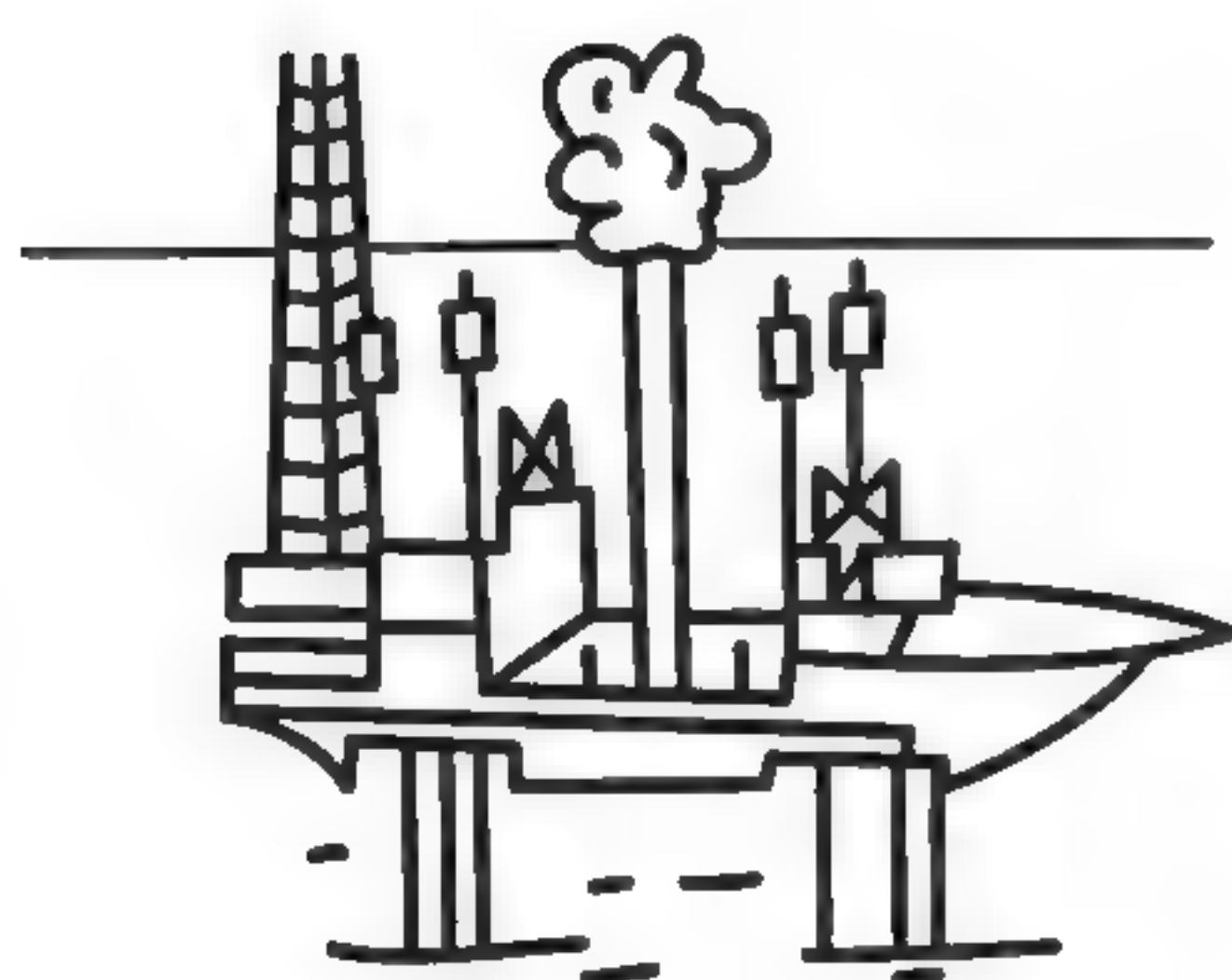
Natural Resources



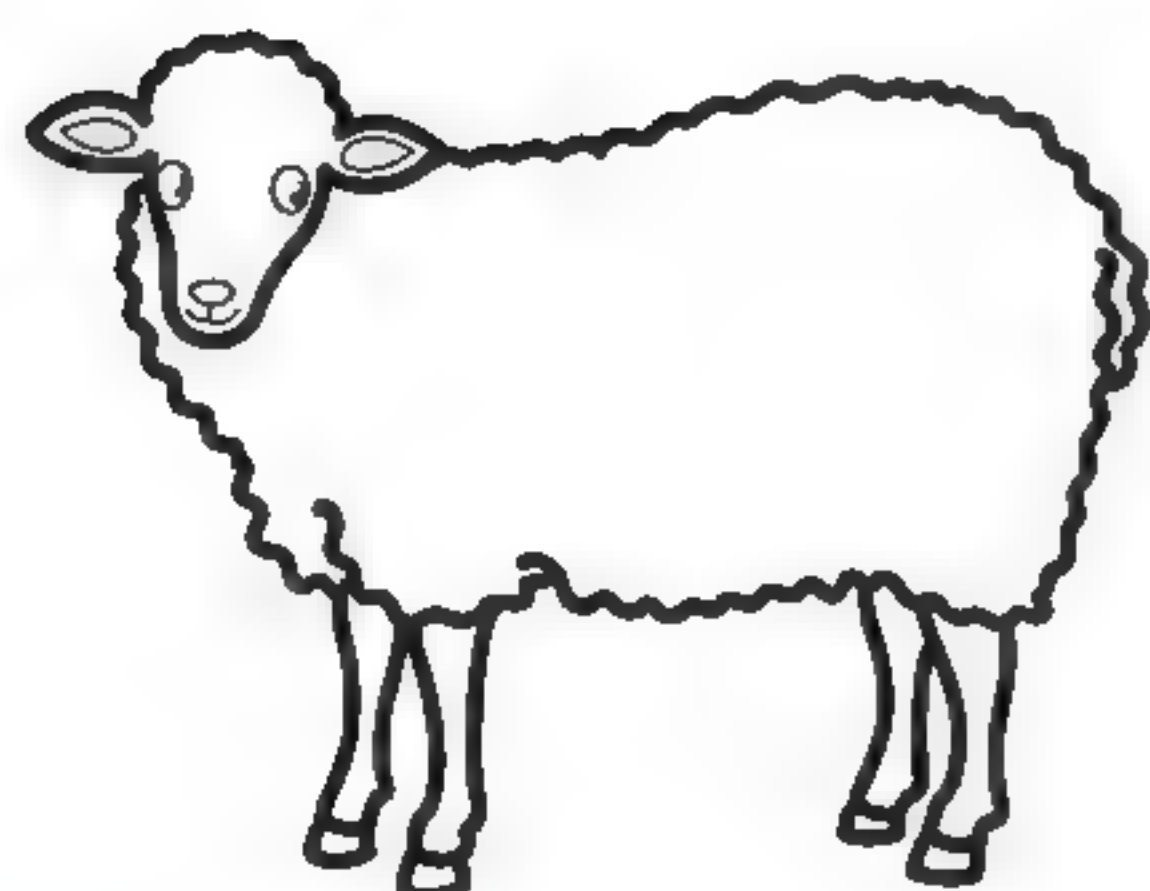
Trees



Water

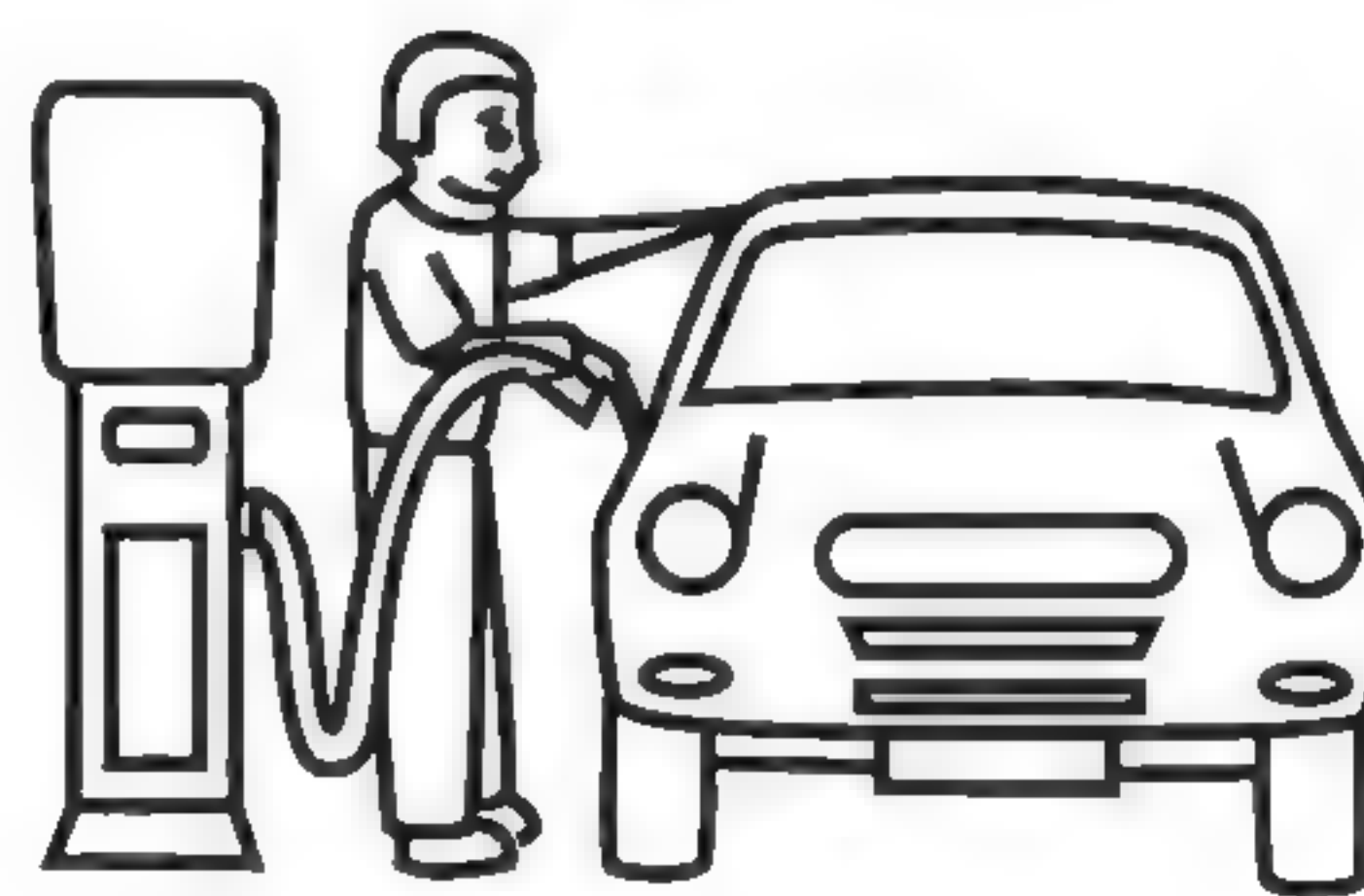


Oil



Sheep

Products



Gasoline



Wool



Beverages



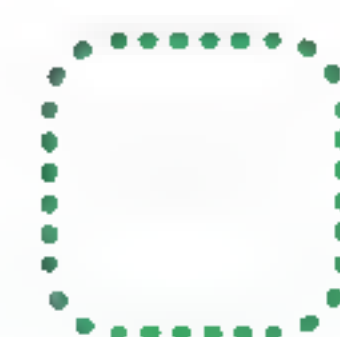
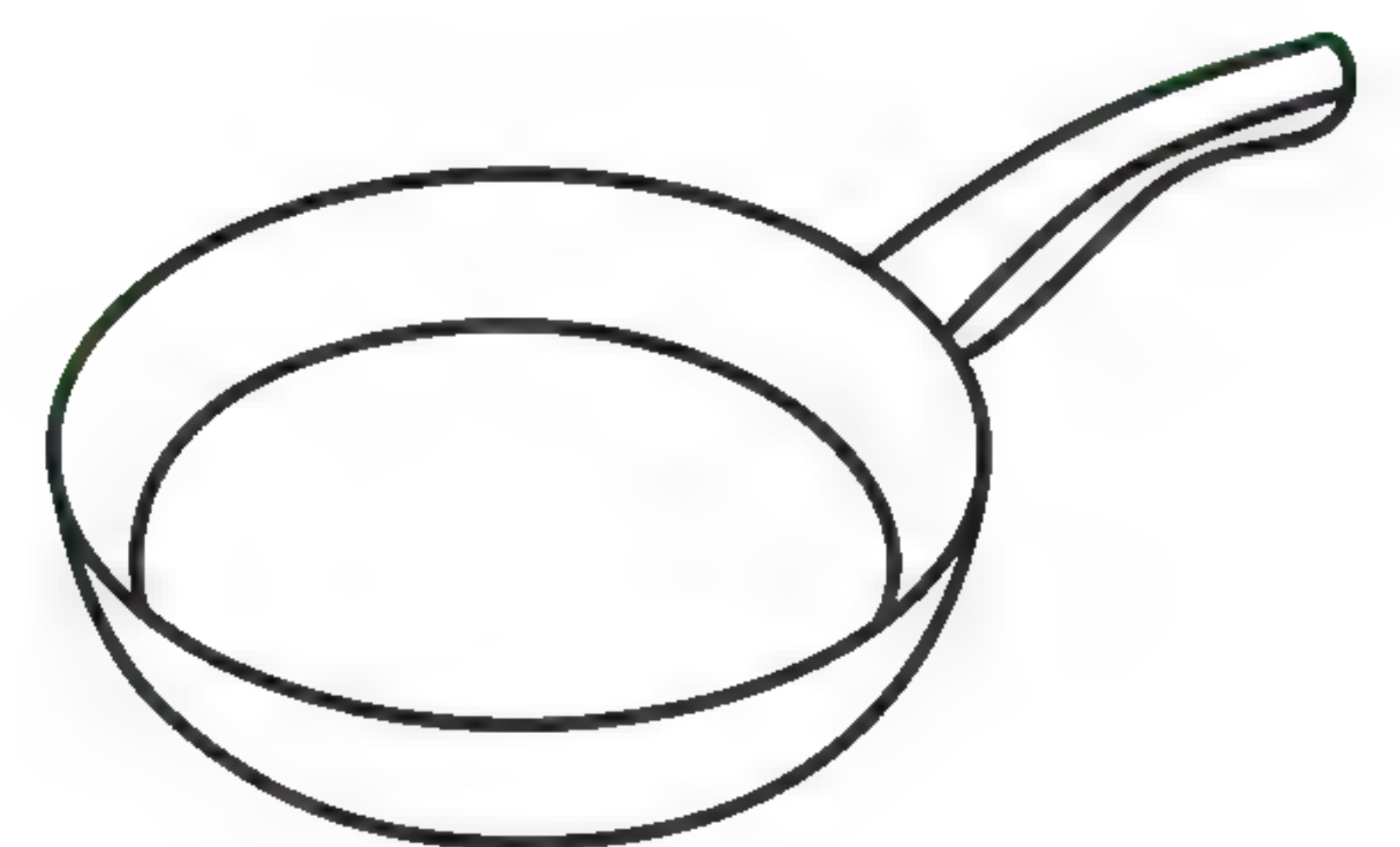
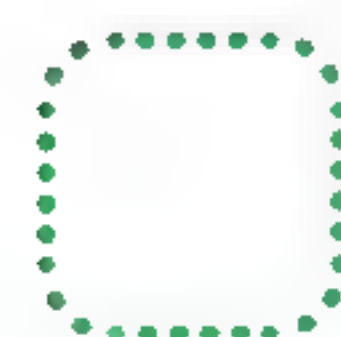
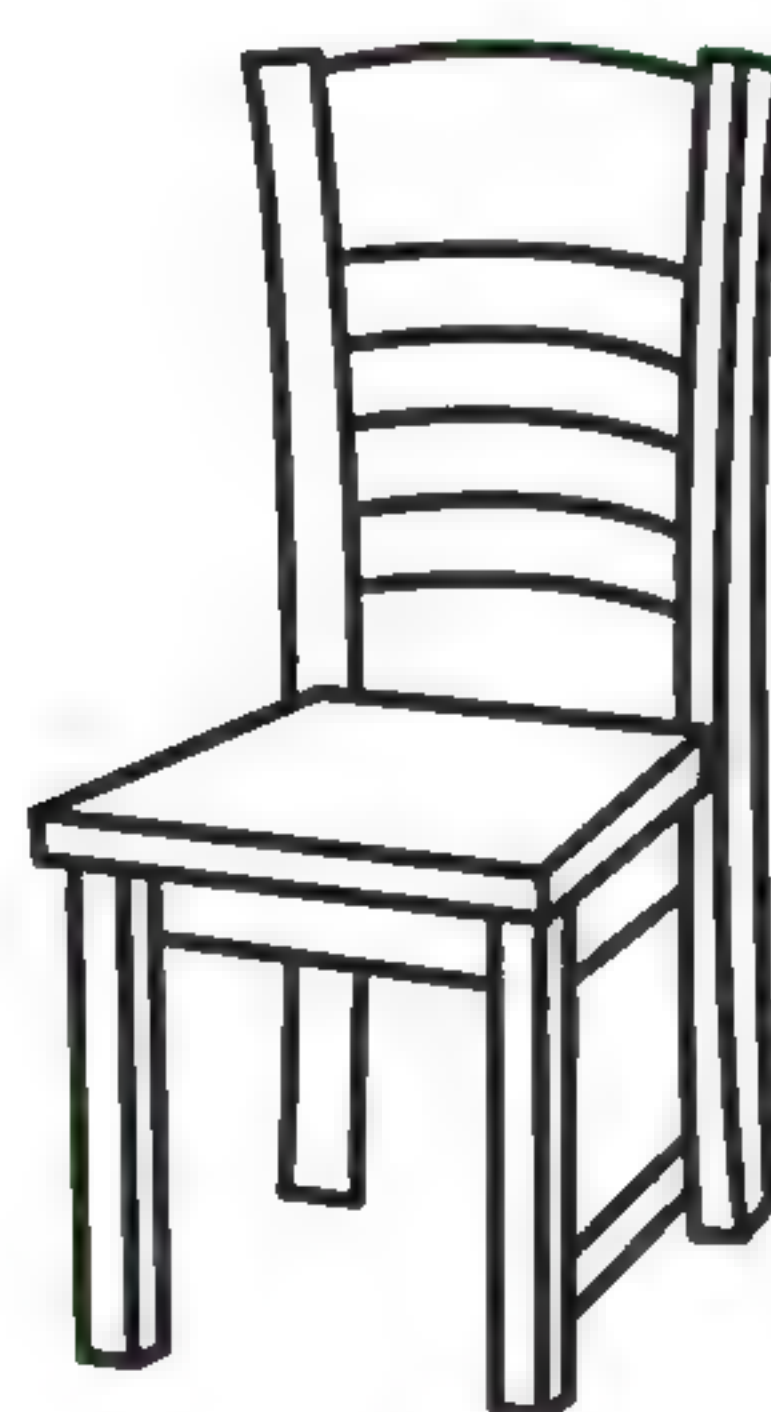
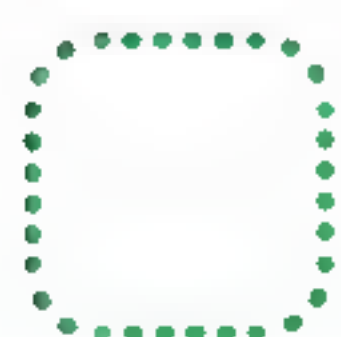
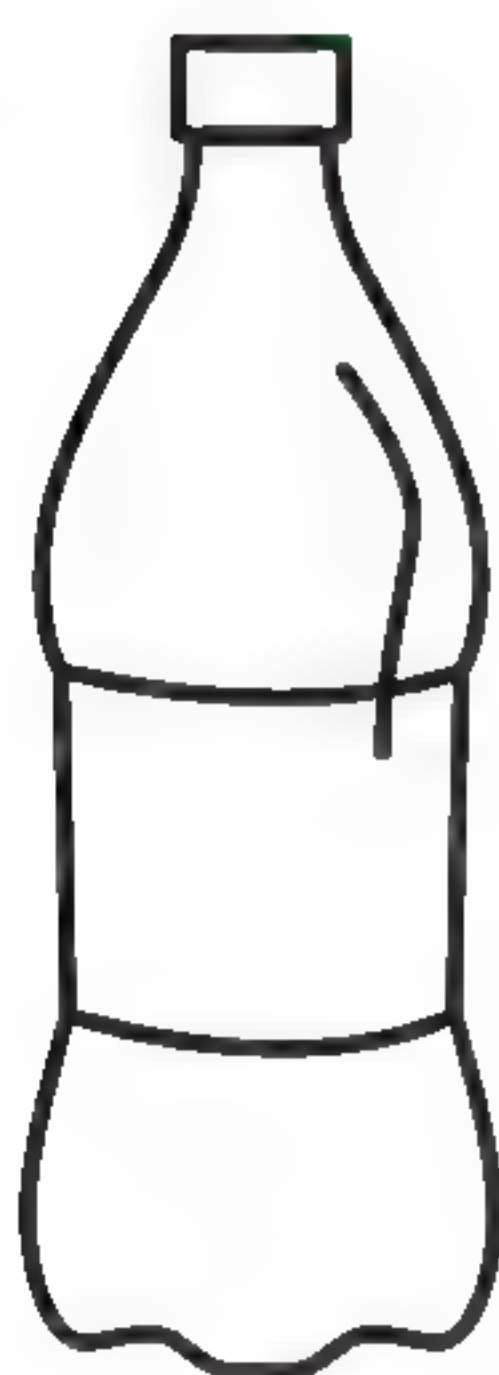
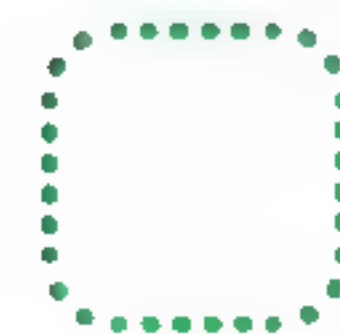
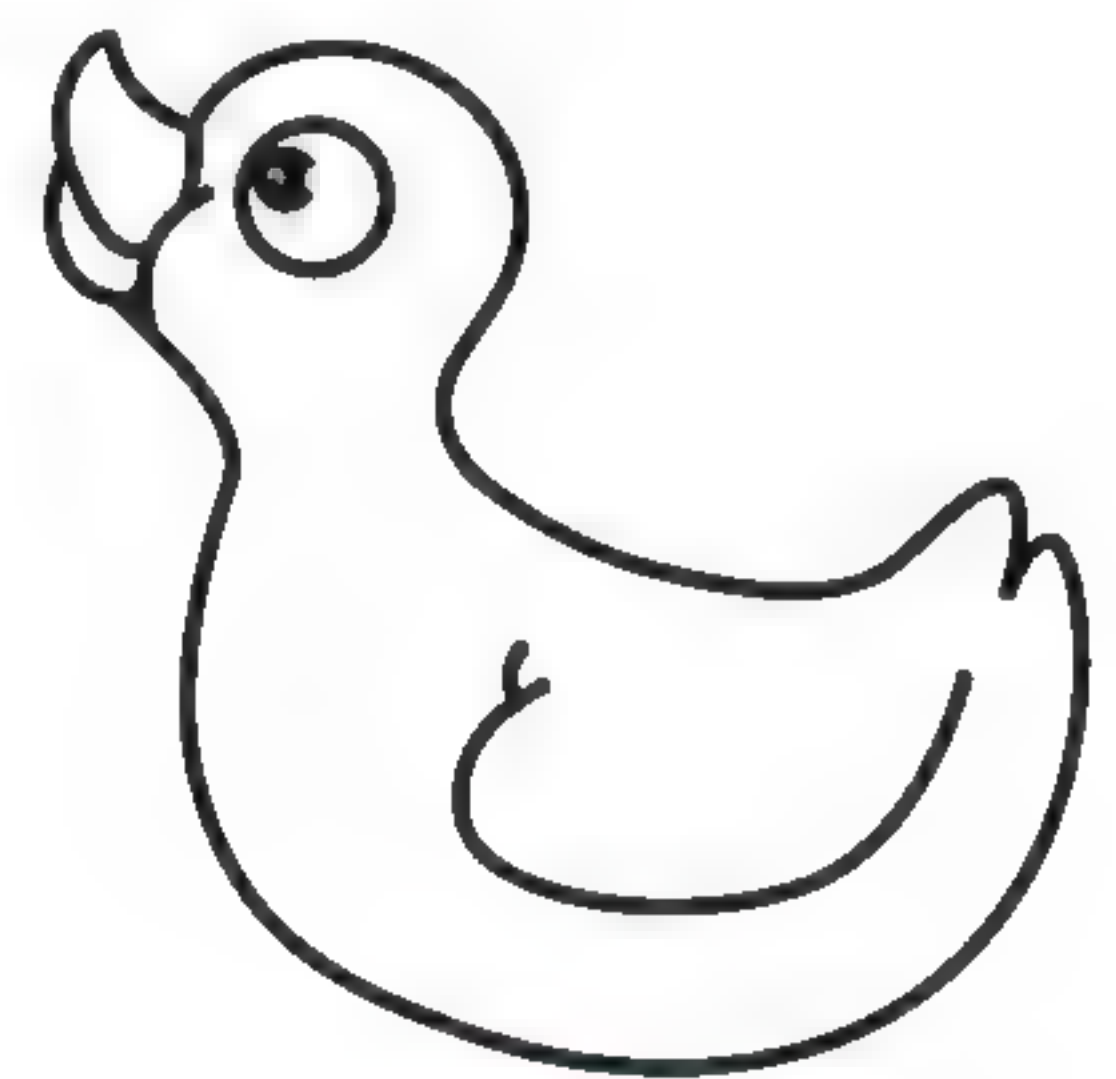
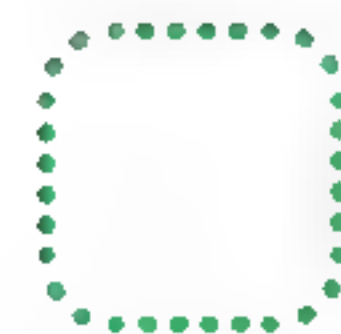
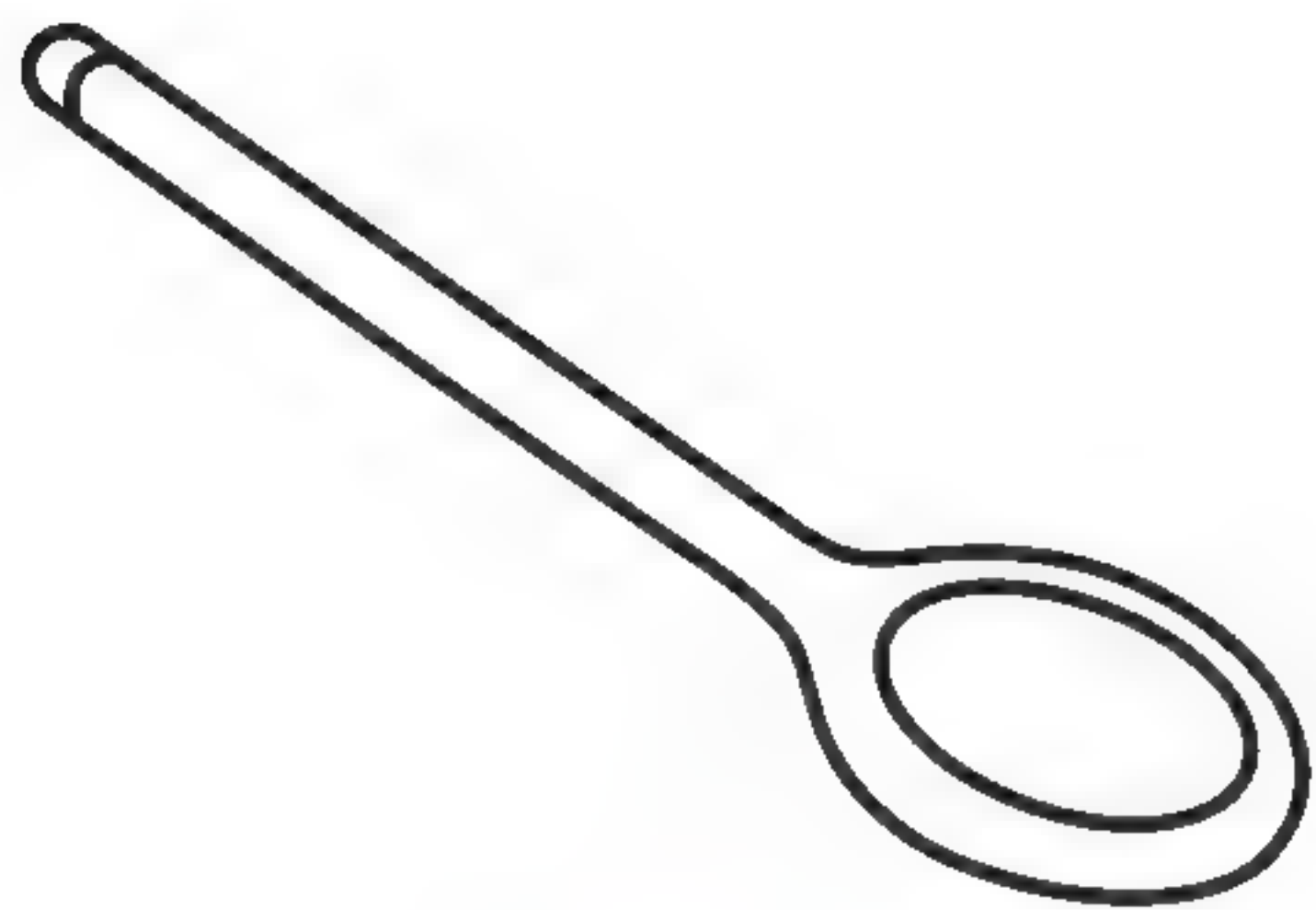
Wooden table





The things around you are made from many different materials. Three common materials are wood, metal, and plastic. Metals are usually hard, shiny, and cold to touch. Wood feels warm and often makes a hollow “thud” when you tap it. Plastics come in many forms but are often smooth and shiny.

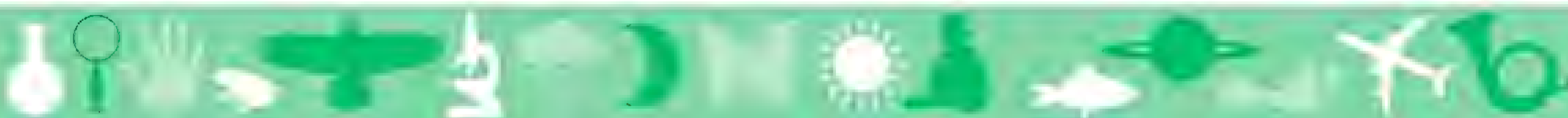
Write **W** beneath the objects that are made of wood, **M** beneath the ones made of metal, and **P** beneath the ones made of plastic.



Look around you. Write the name of something made of metal and something made of plastic that you can see.

Metal

Plastic



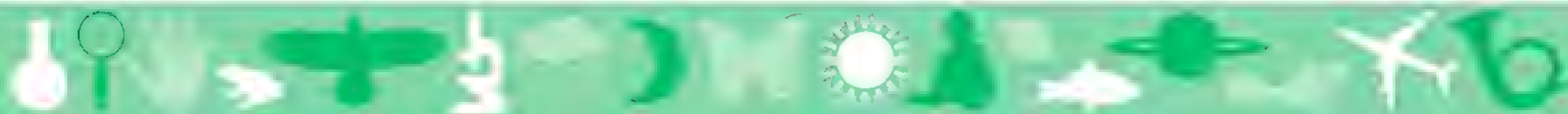


Metals

FACTS

Metal is a very useful material and is used to make many different things. Metal objects are usually hard and shiny, and are cold to touch. Some types of metal make a ringing sound when you hit them.

Look at this picture and circle the things made of metal.



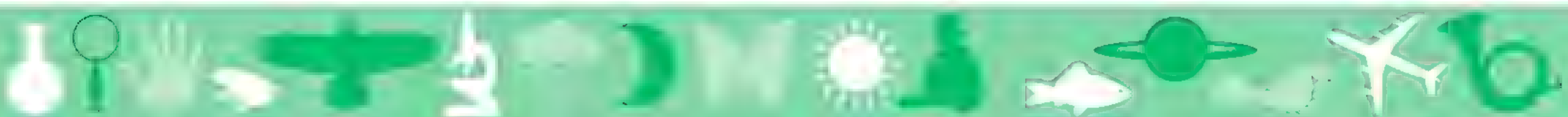


Many of the things that we use every day are made of plastic. Plastic is not a natural material, like wood or metal. It is made in a factory. It is strong, lightweight, and can be very useful.

Look at the objects below. Circle those that are made of plastic.



On a separate piece of paper, make a list of all the things in your room that are plastic. How many plastic things did you list?



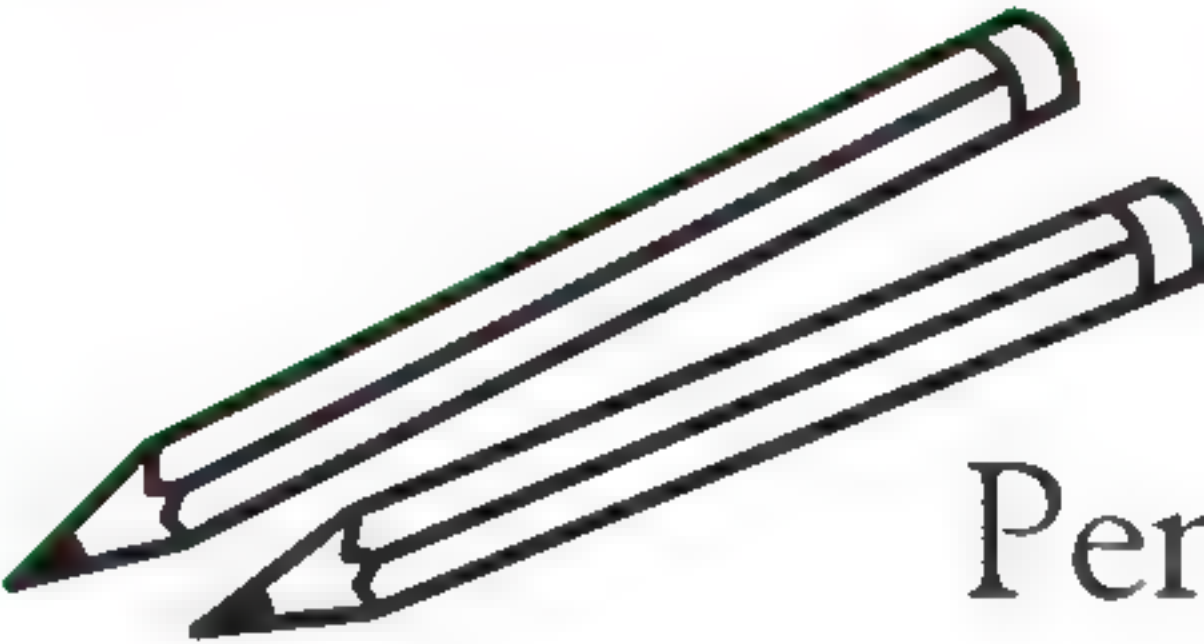


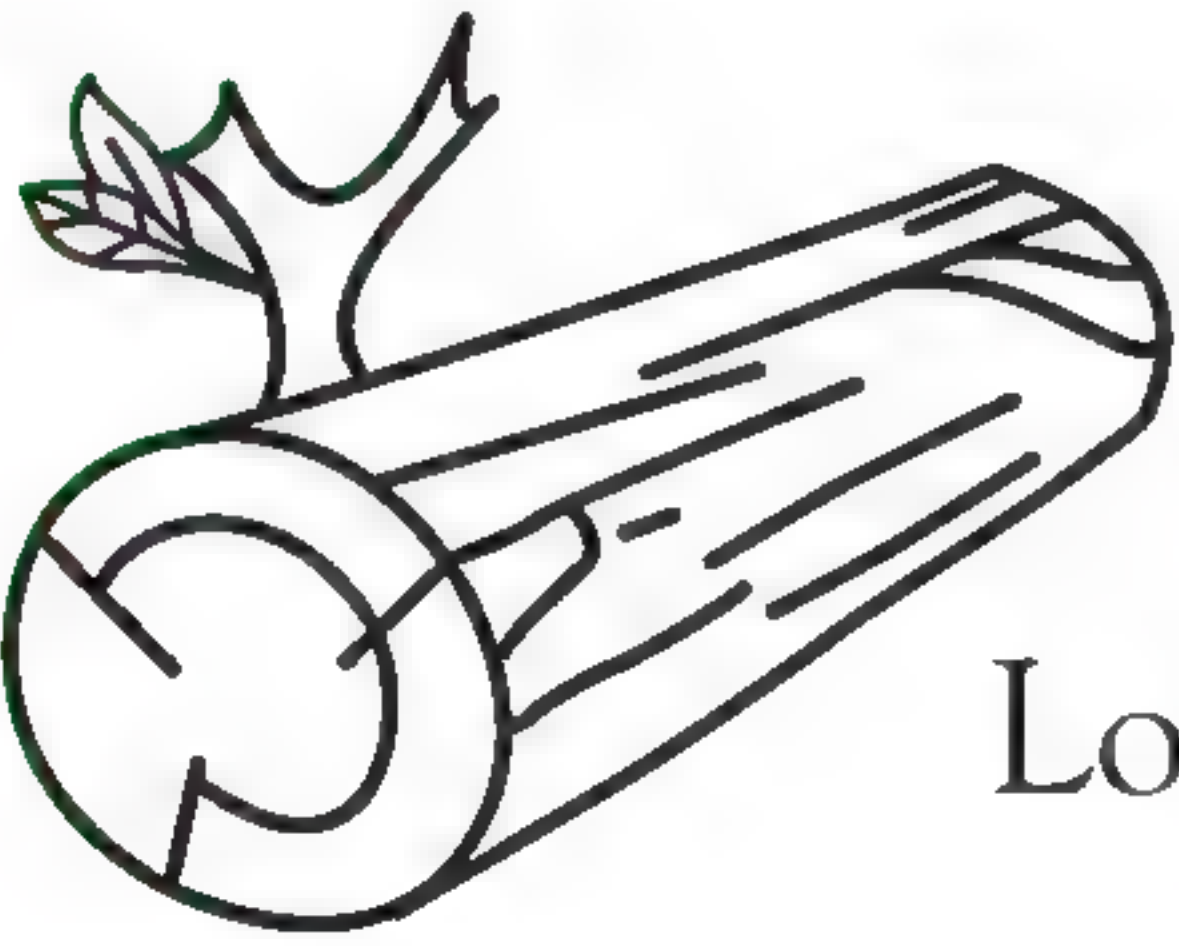



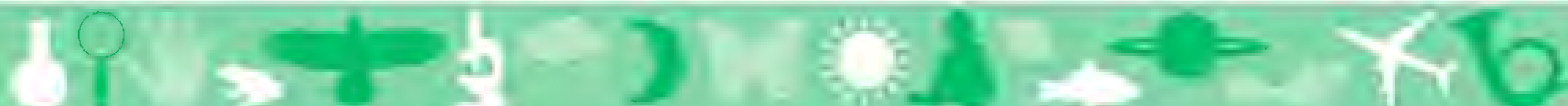
Wood

FACTS

Wood comes from trees. Lots of the things all around you are made of wood. Wooden things float in water, make a dull sound when you tap them, and often smell nice.

Look at the chart. Put a check (✓) in the correct box next to each object shown on the chart.

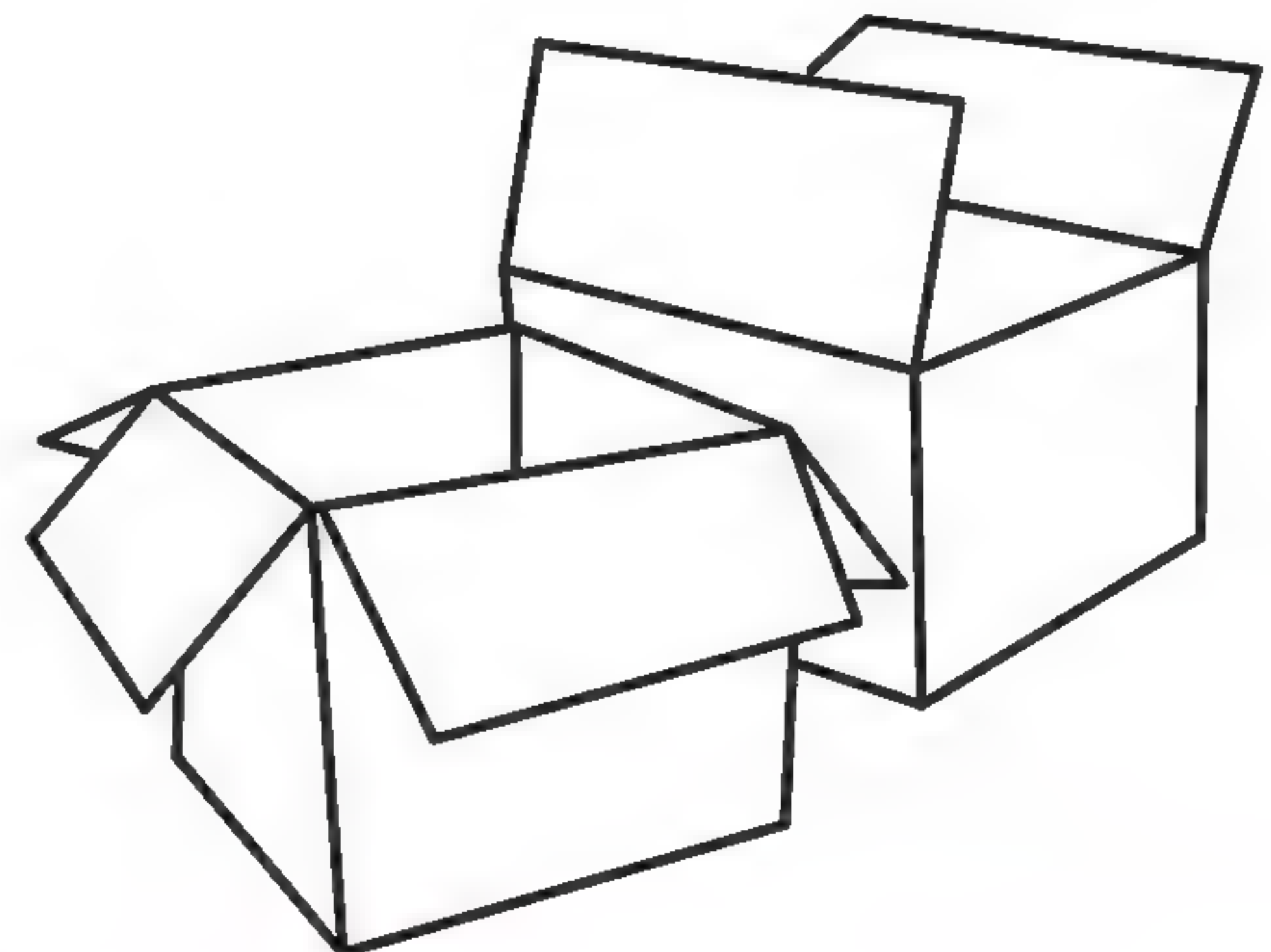
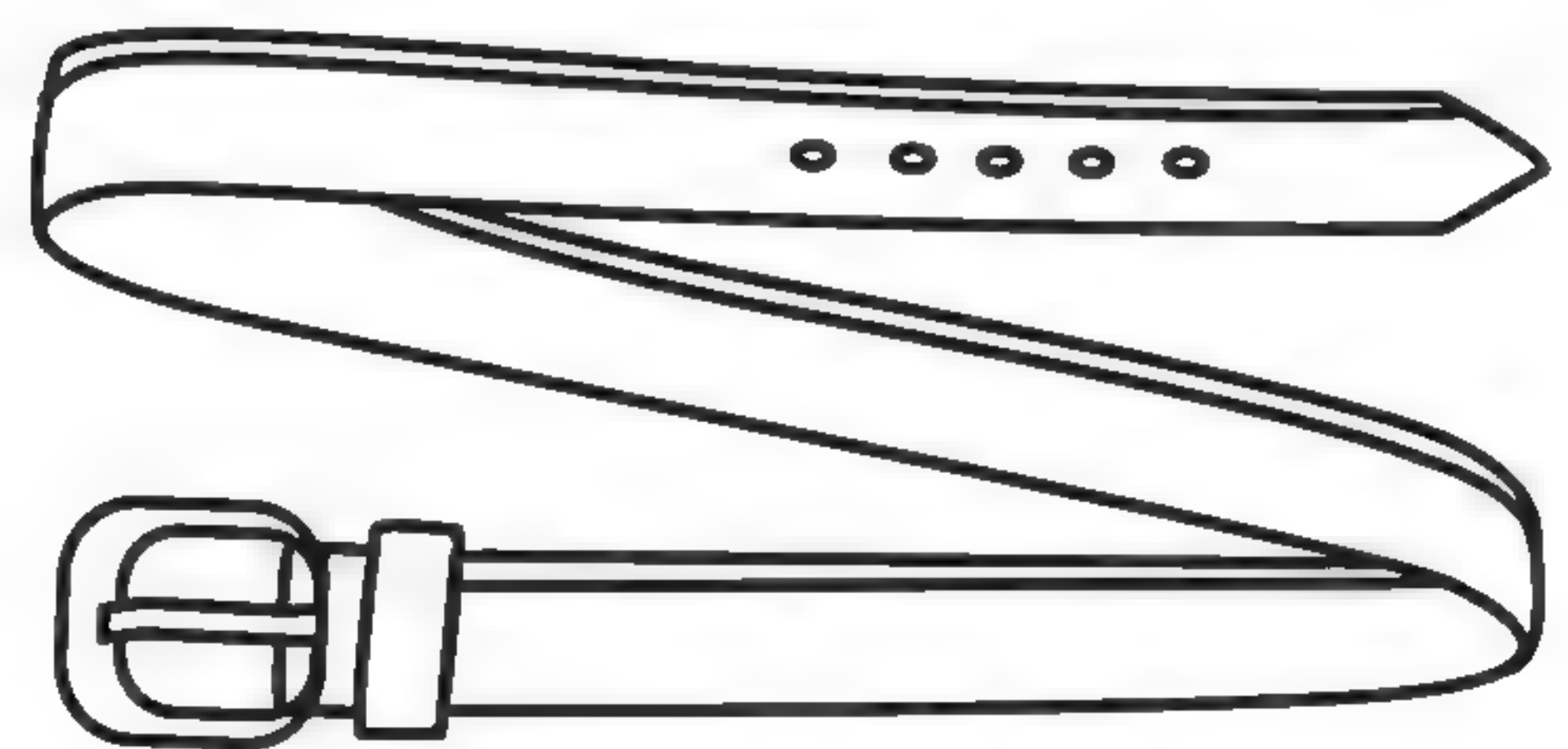
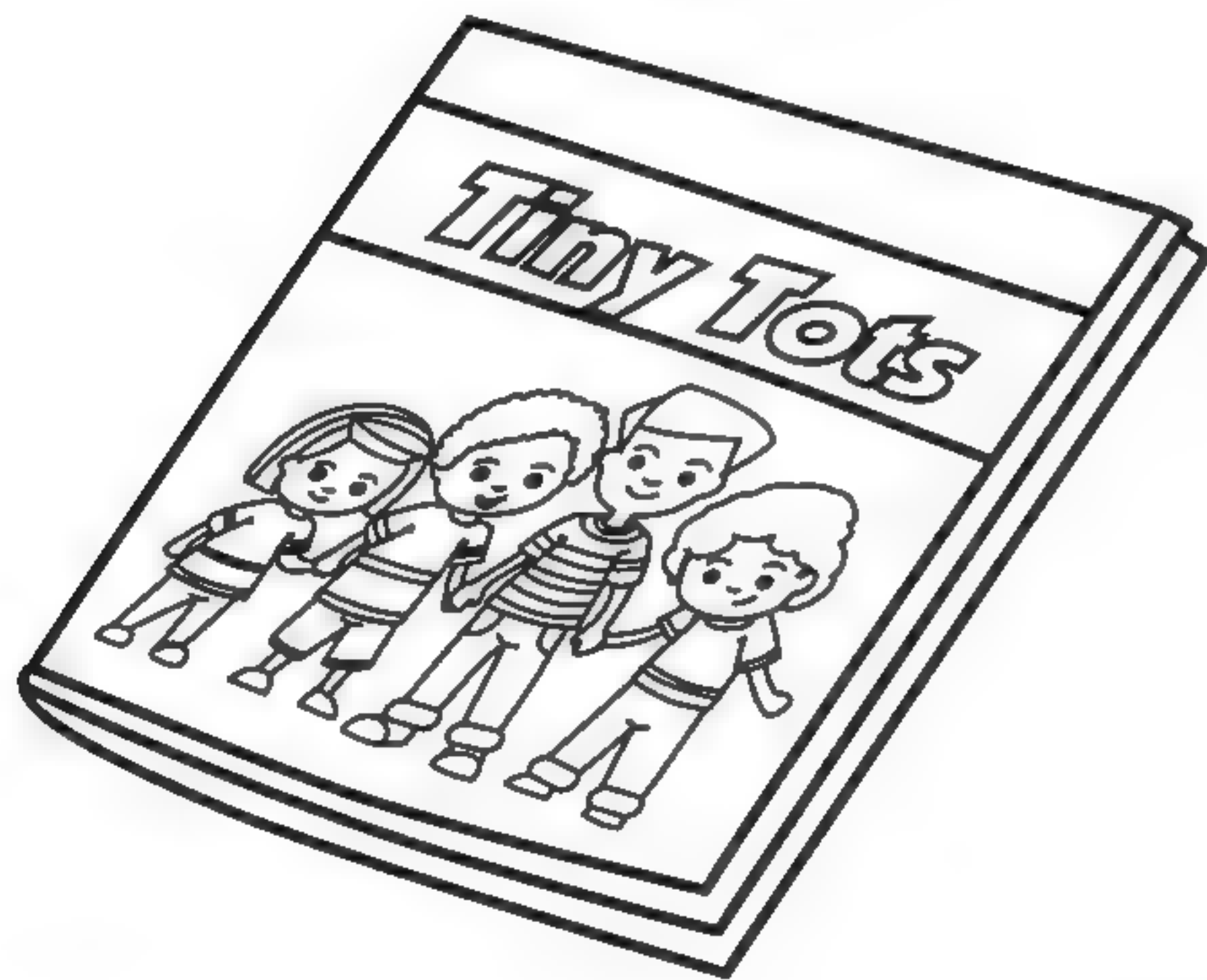
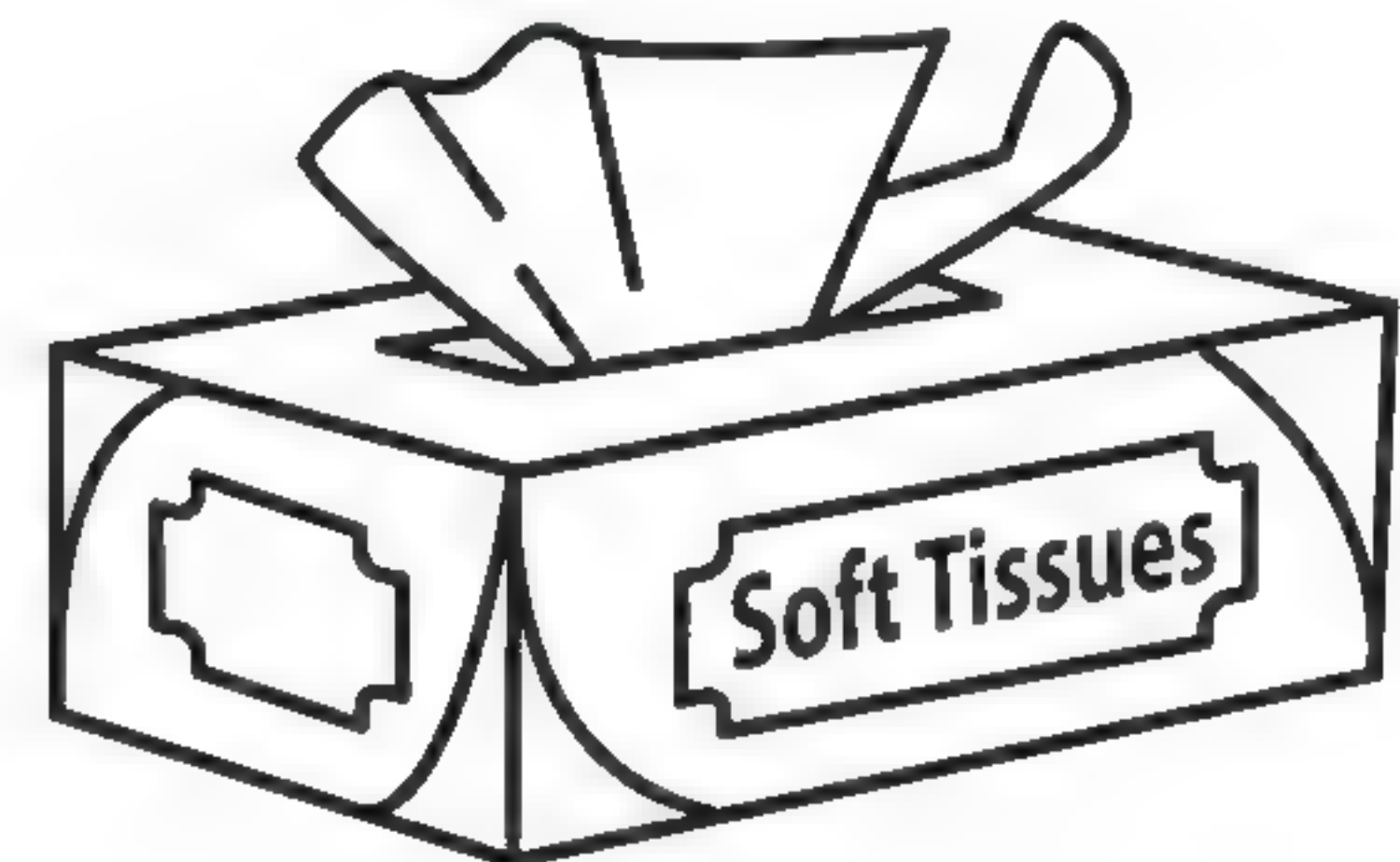
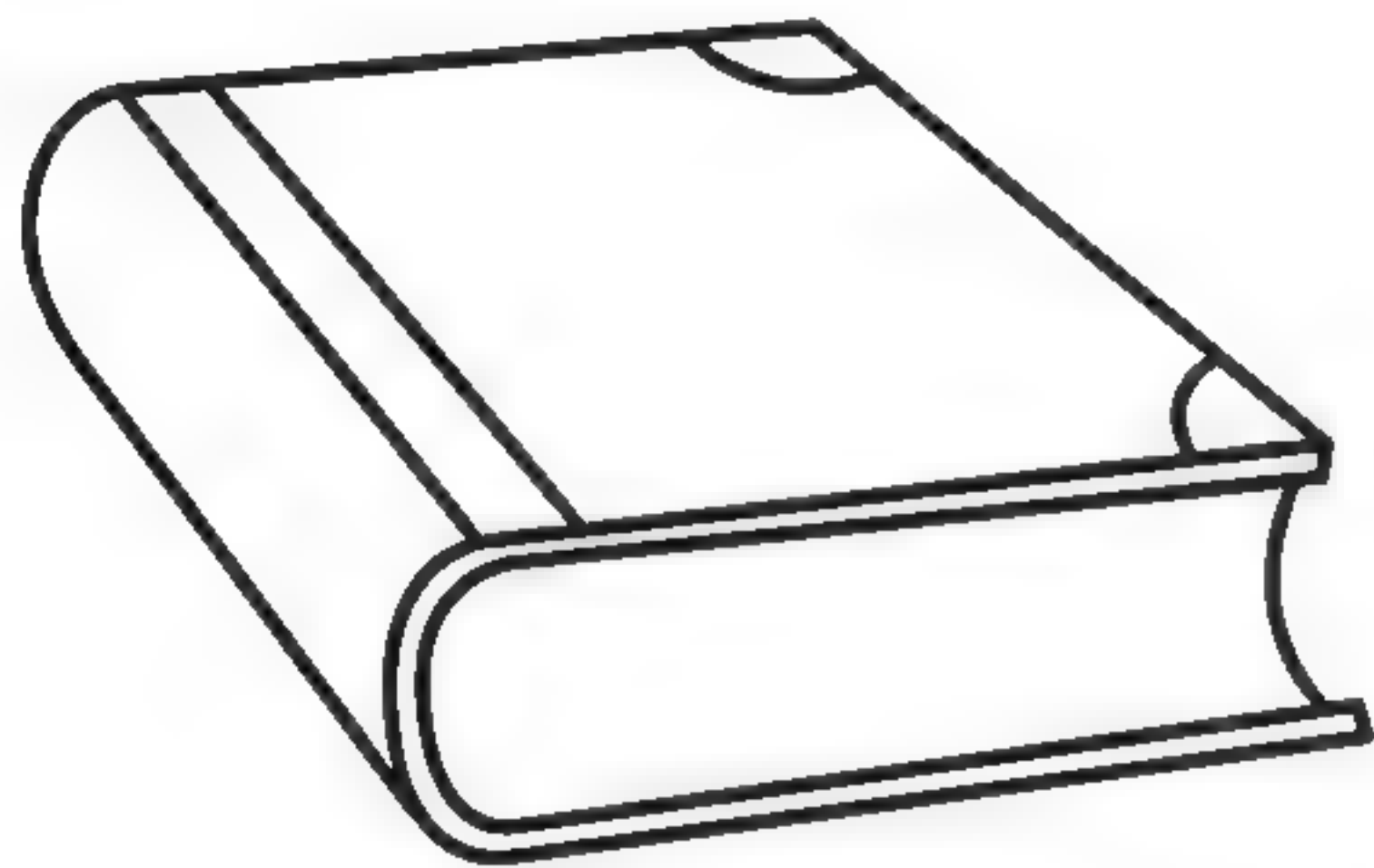
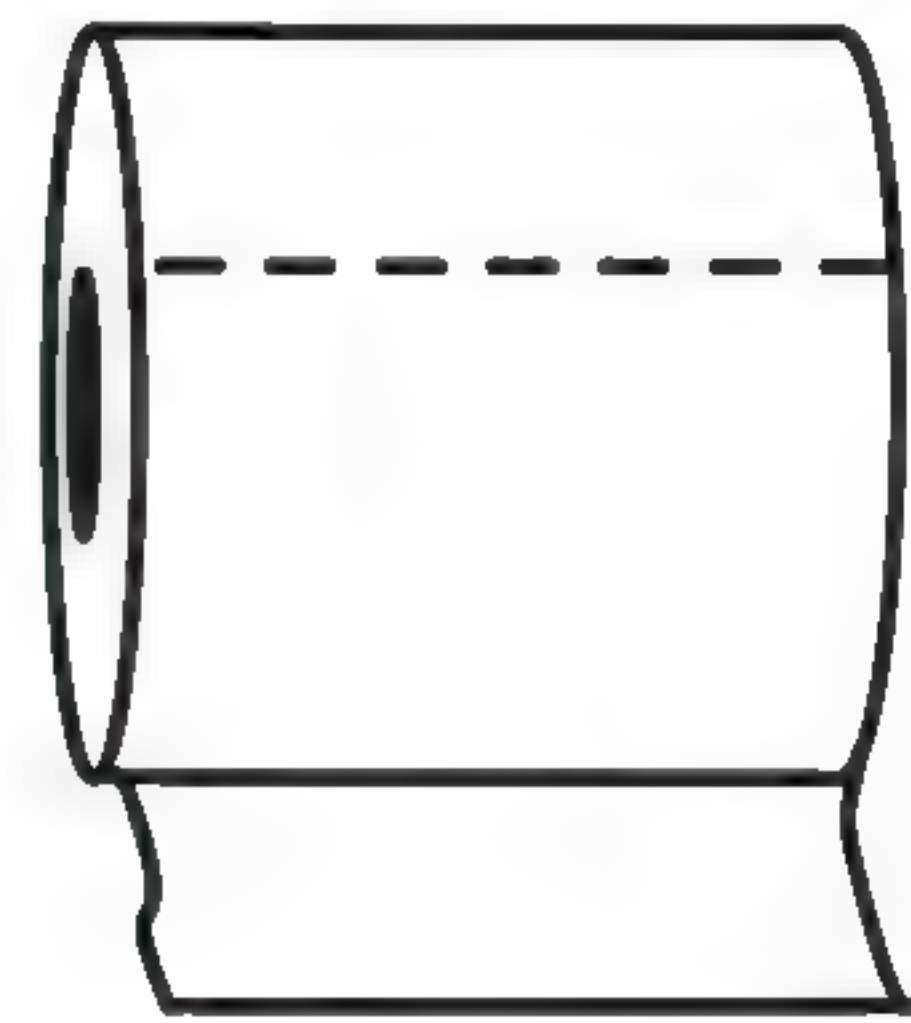
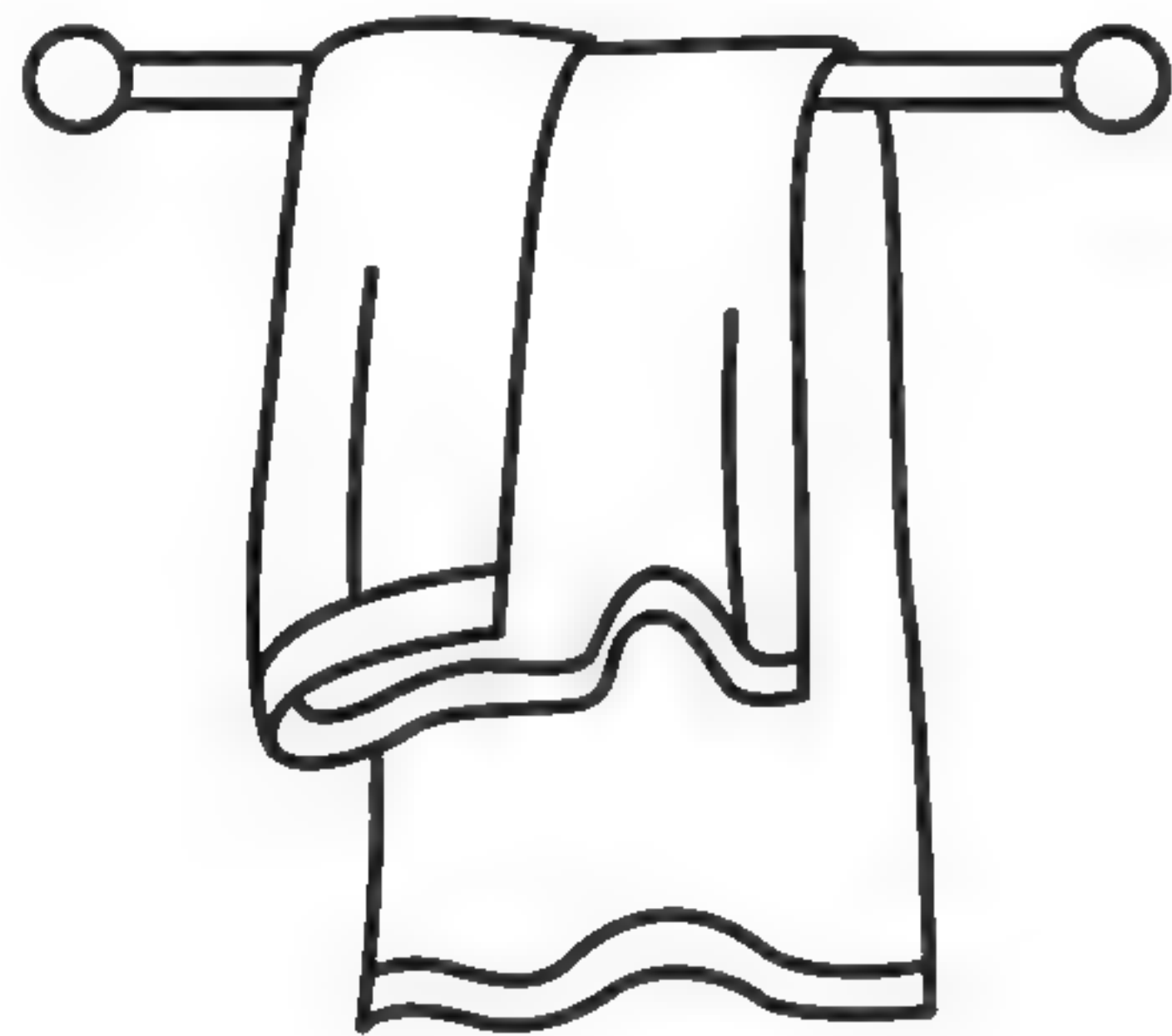
Object	Wood	Not Wood
 Pencil	<input type="checkbox"/>	<input type="checkbox"/>
 Bottle	<input type="checkbox"/>	<input type="checkbox"/>
 Spoon	<input type="checkbox"/>	<input type="checkbox"/>
 Log	<input type="checkbox"/>	<input type="checkbox"/>
 Chair	<input type="checkbox"/>	<input type="checkbox"/>





Paper is also made from wood. You use paper objects every day at home and at school. Books, newspapers, cardboard, notebooks, and tissues are some of the paper things that people use every day.

Look at the objects shown below. Circle the objects that are made of paper.





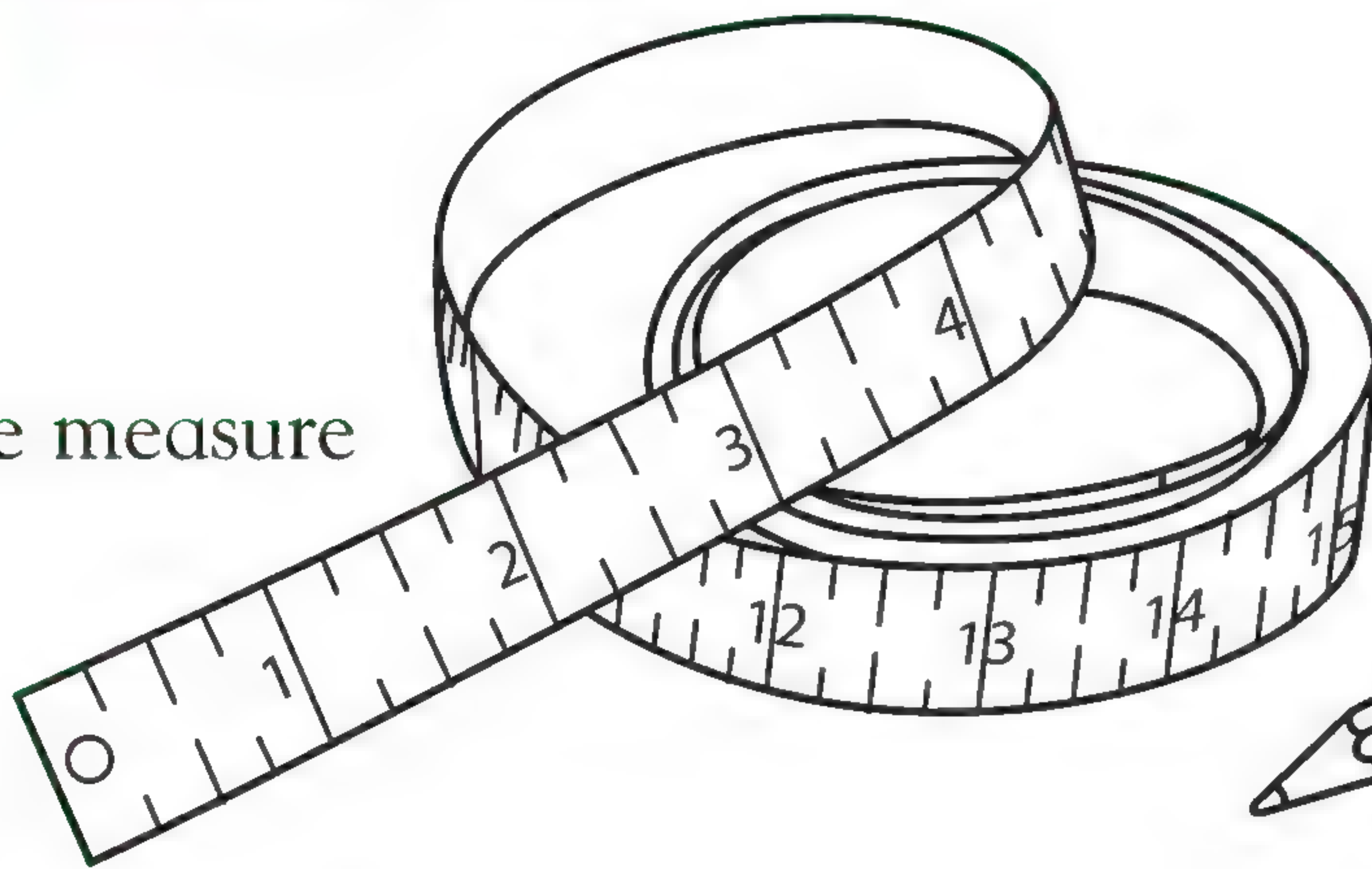
Length

FACTS

Length is a measure of how long something is.

TEST What You Need:

Tape measure



Pencil



What To Do:

Working with an adult, use the tape measure to find the length of the parts of your body listed on the chart. Record the lengths.

RESULT

Body Part	Length
Index finger	inches
Thumb	inches
Foot	inches
Lower leg	inches
Lower arm	inches

Which two body parts are the longest? Which are the shortest?

.....

.....



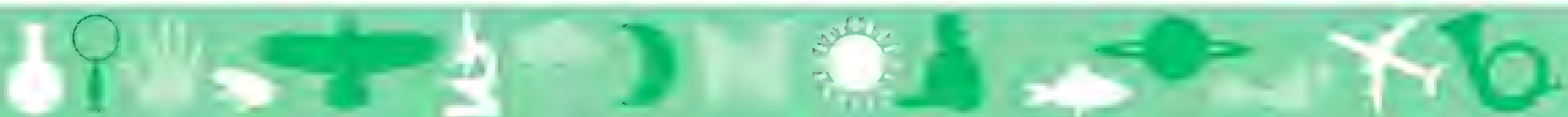
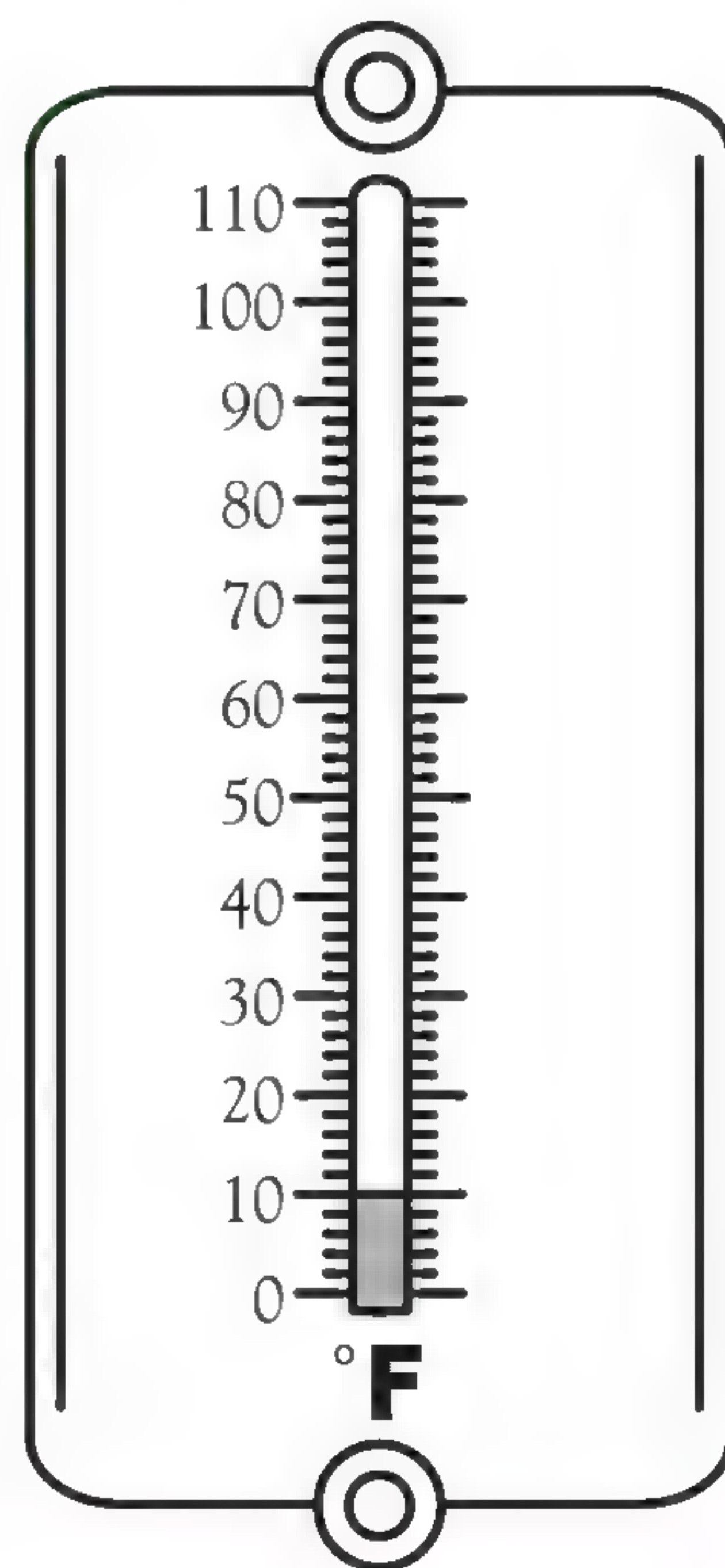
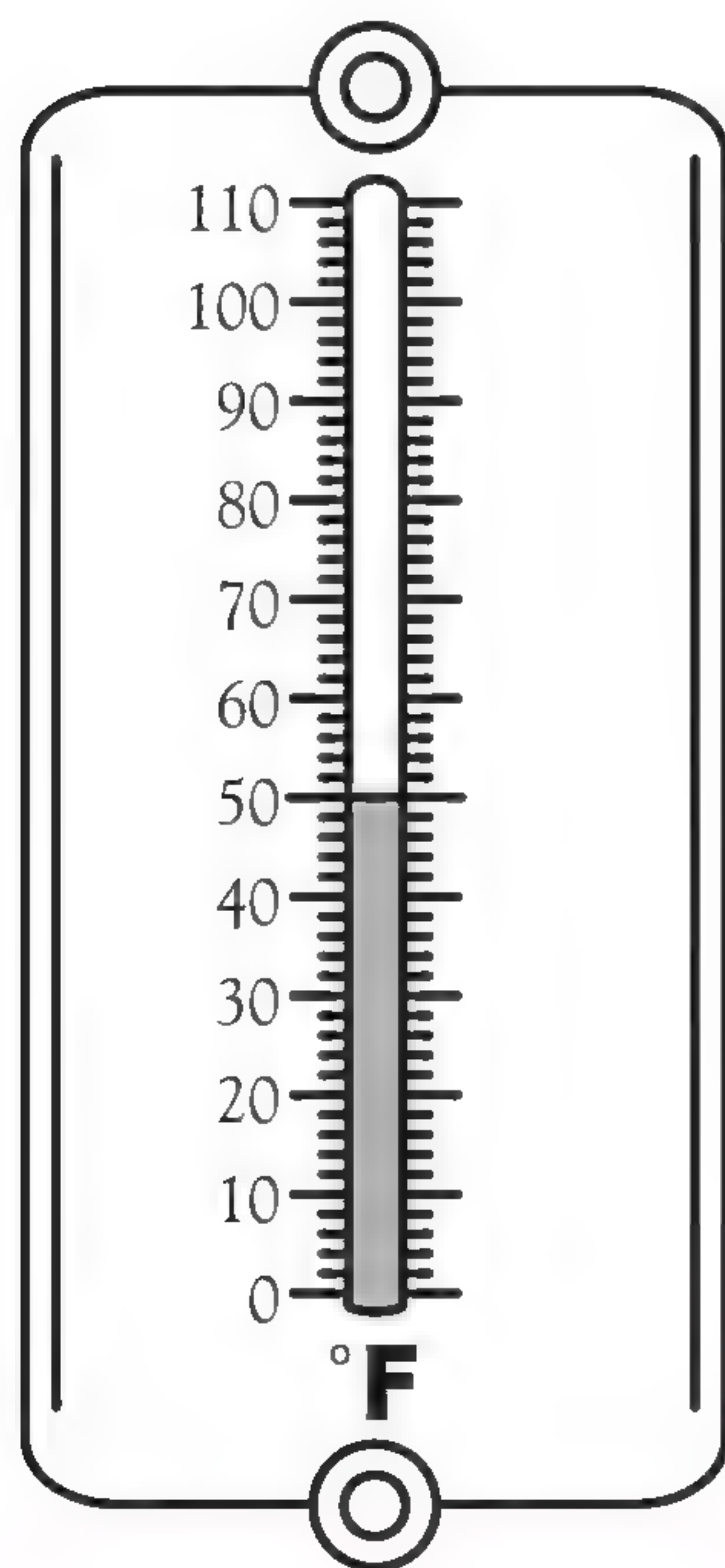
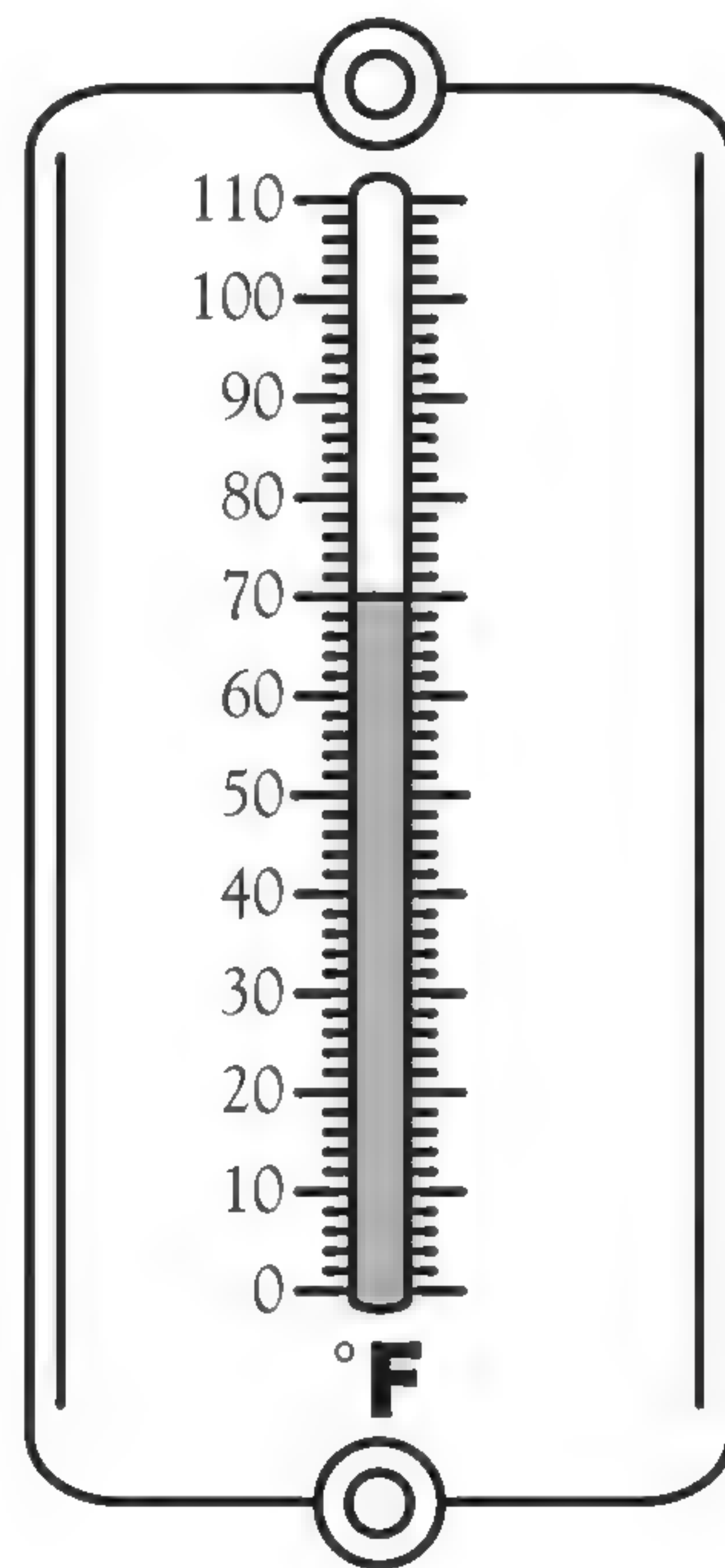
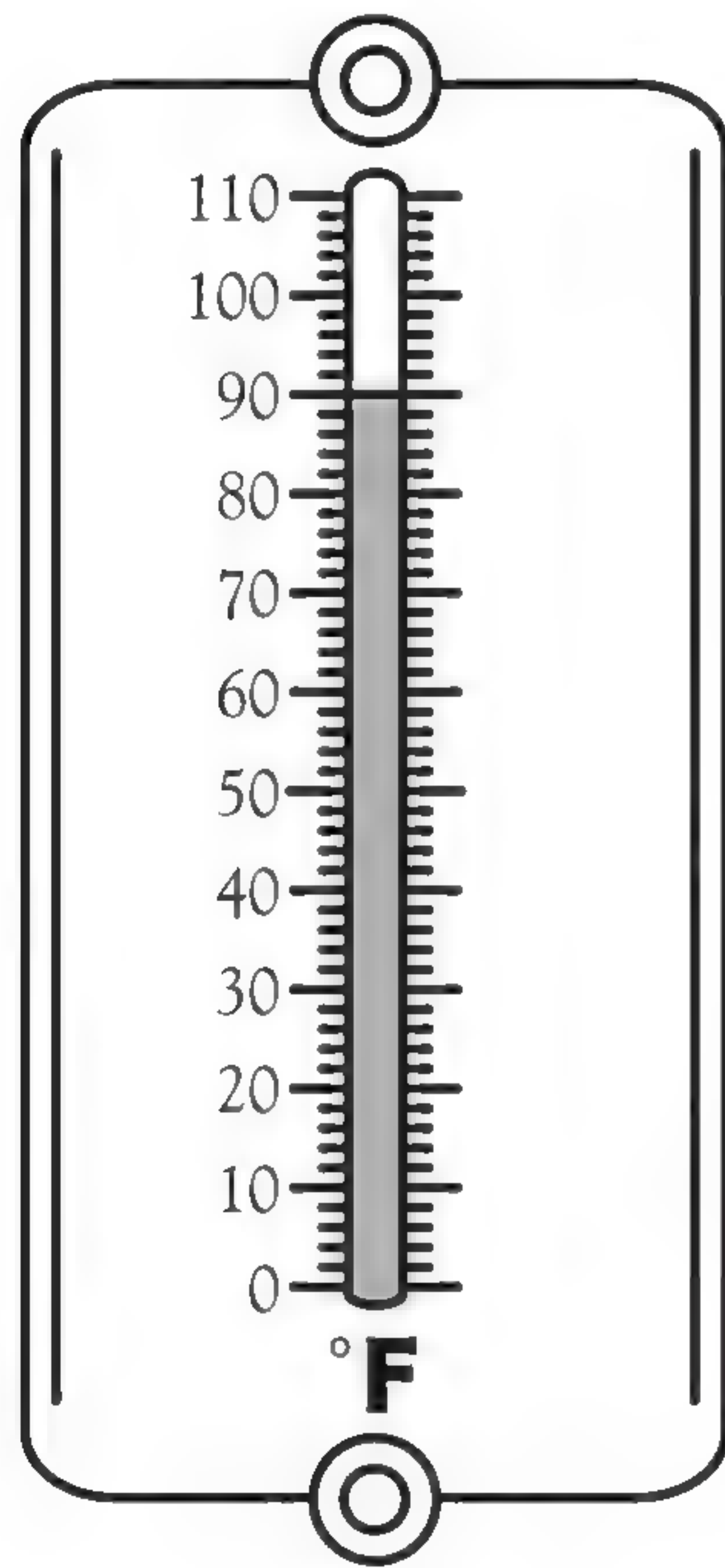
Measuring Temperature



FACTS

Temperature is a measure of how warm or cold something is.
A thermometer is an instrument that measures temperature.

These thermometers measure temperature. Look at each one and write the temperature shown on it in the boxes.



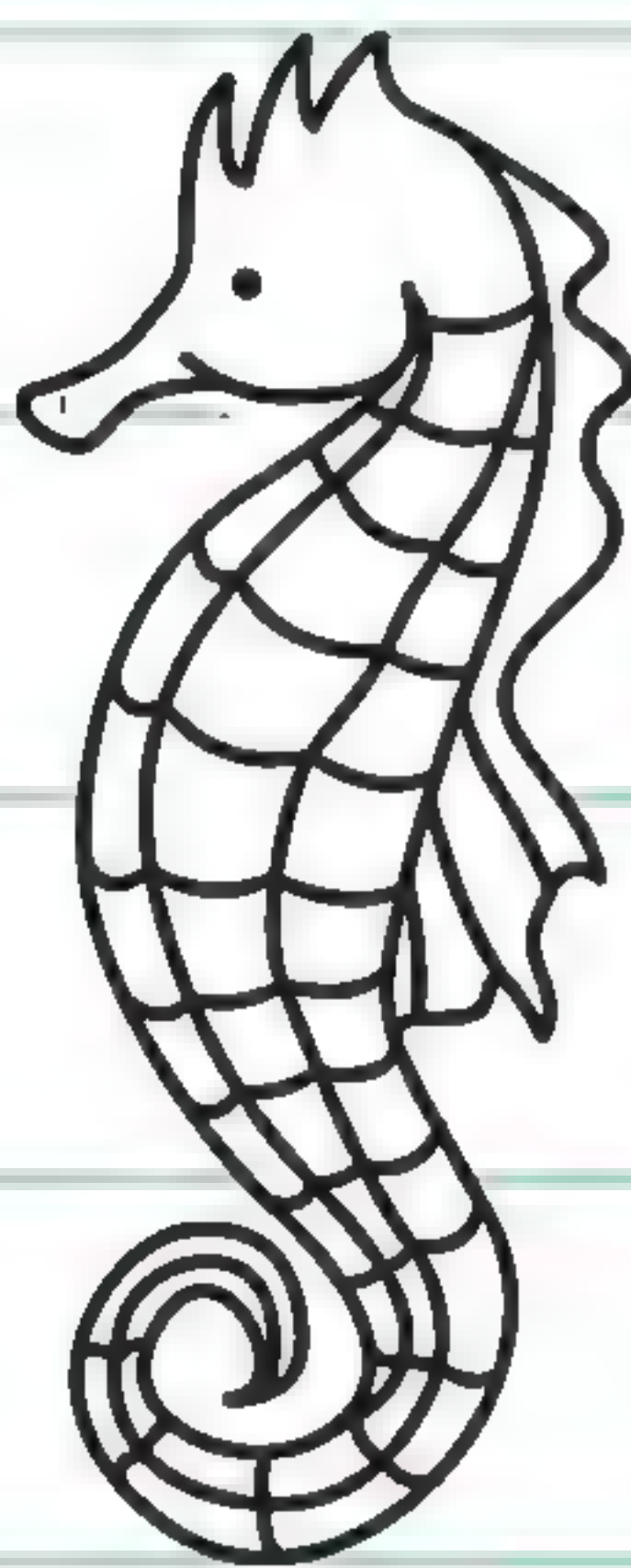
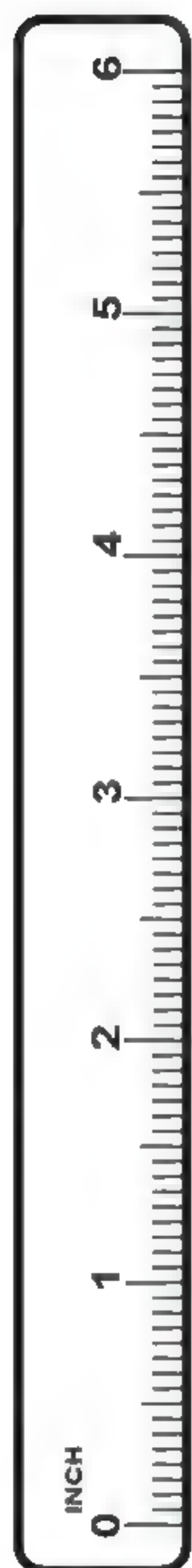


Height

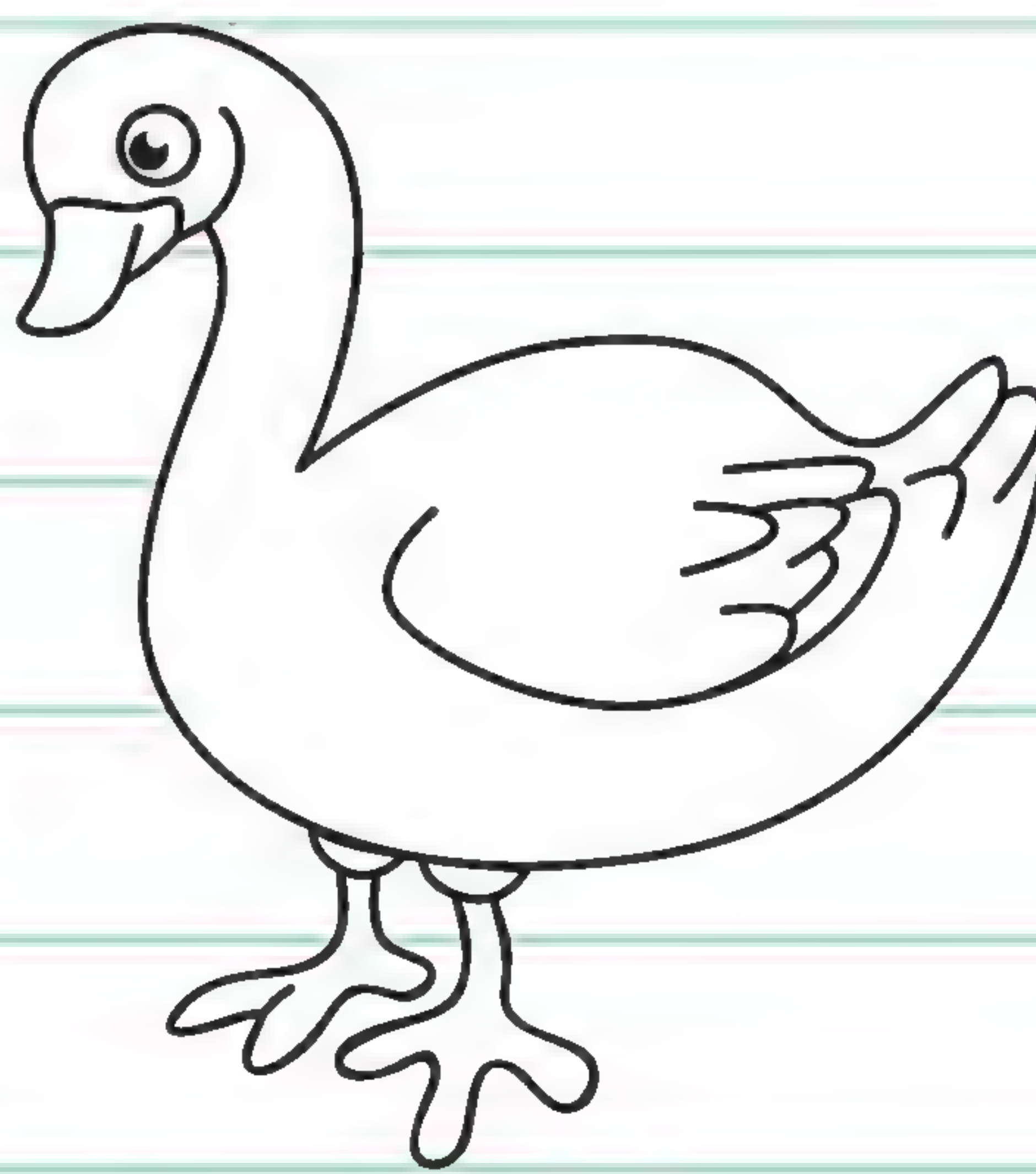
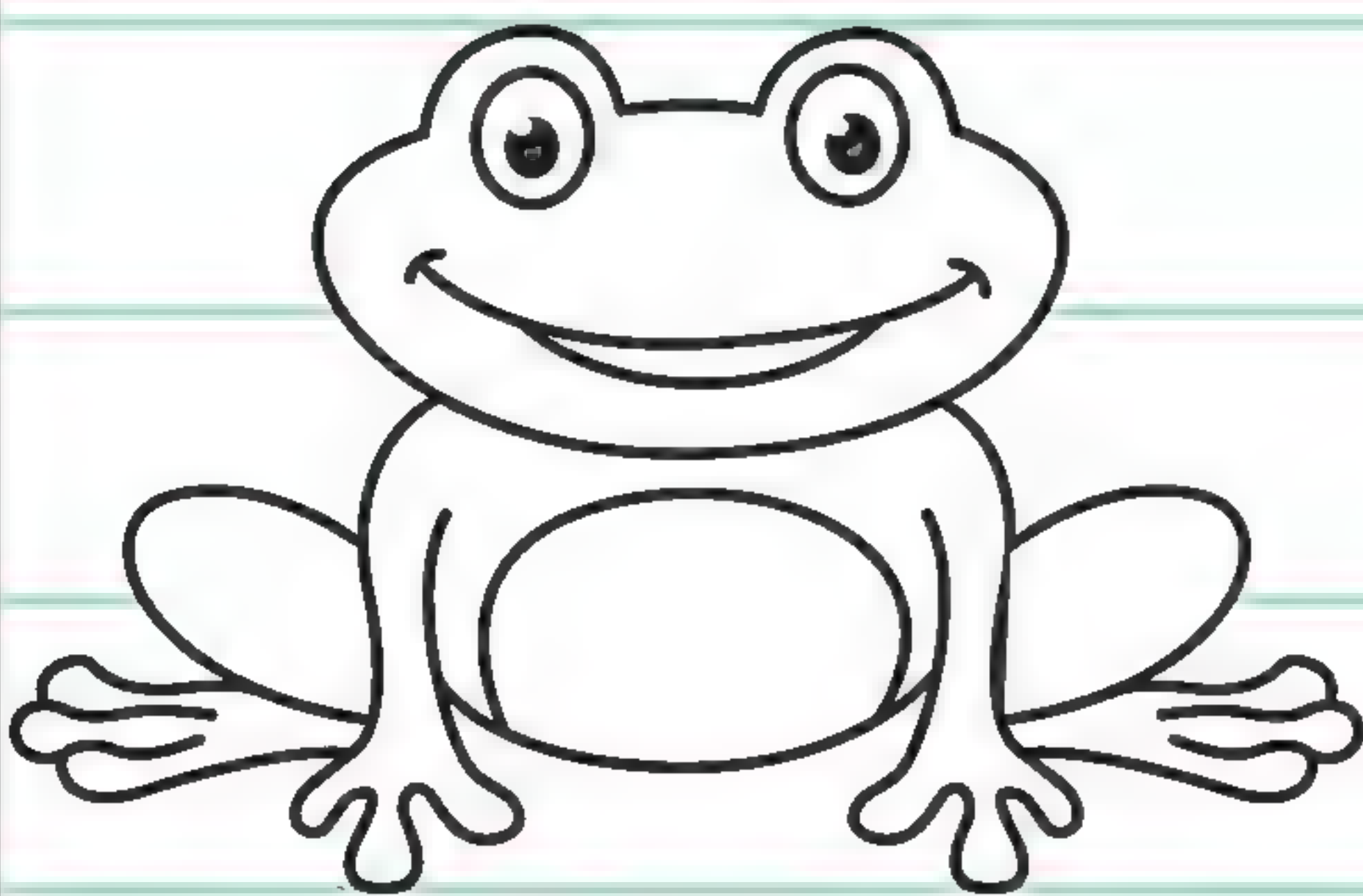
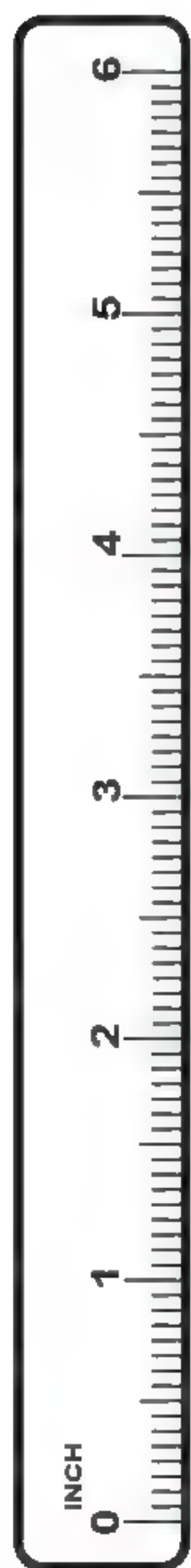
FACTS

Height is a measure of how high or tall something is.

The heights of the four animals shown below are measured using a ruler. The seahorse is 4 in. tall. Write down the height of the other three animals.

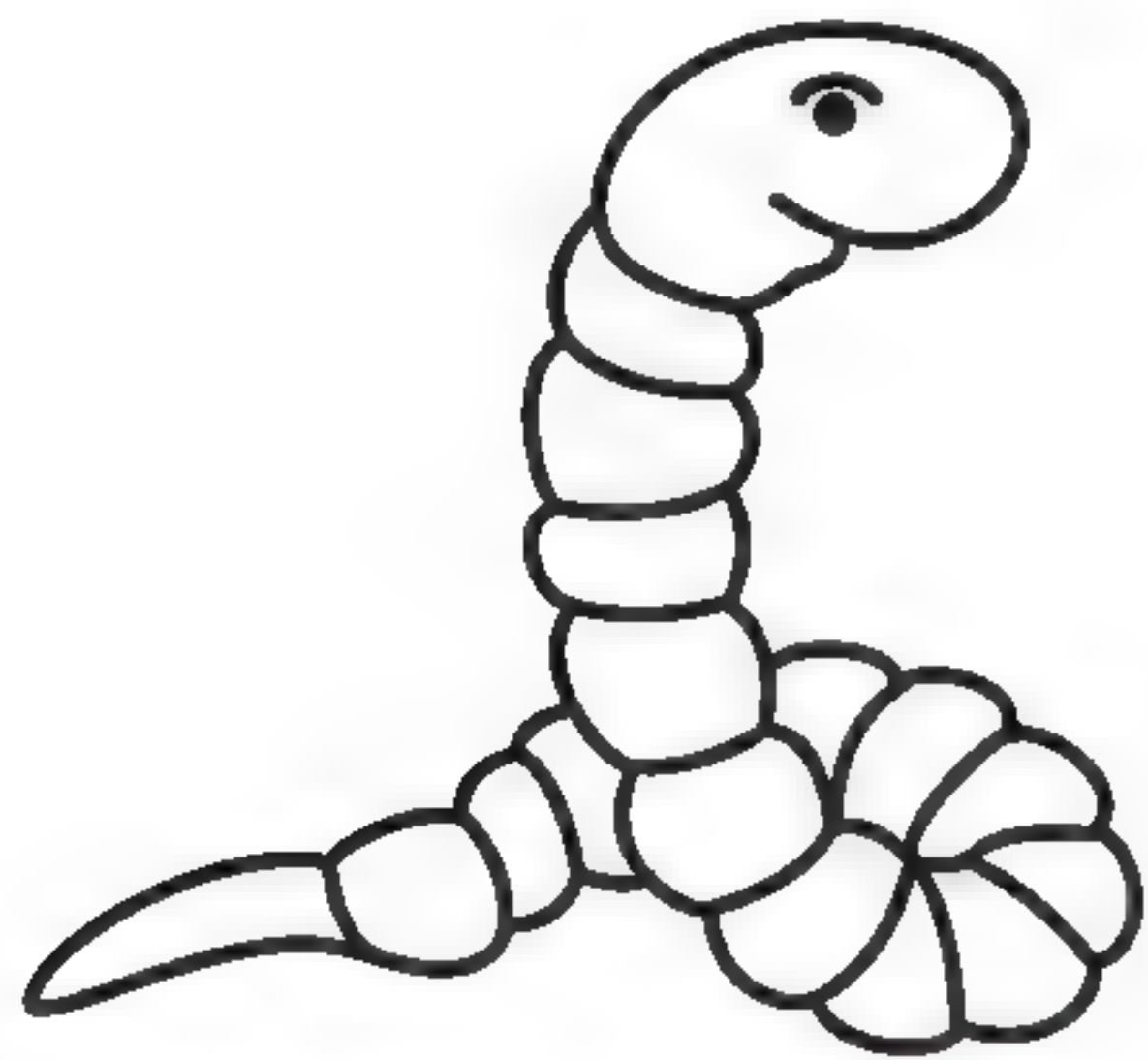


4 in.

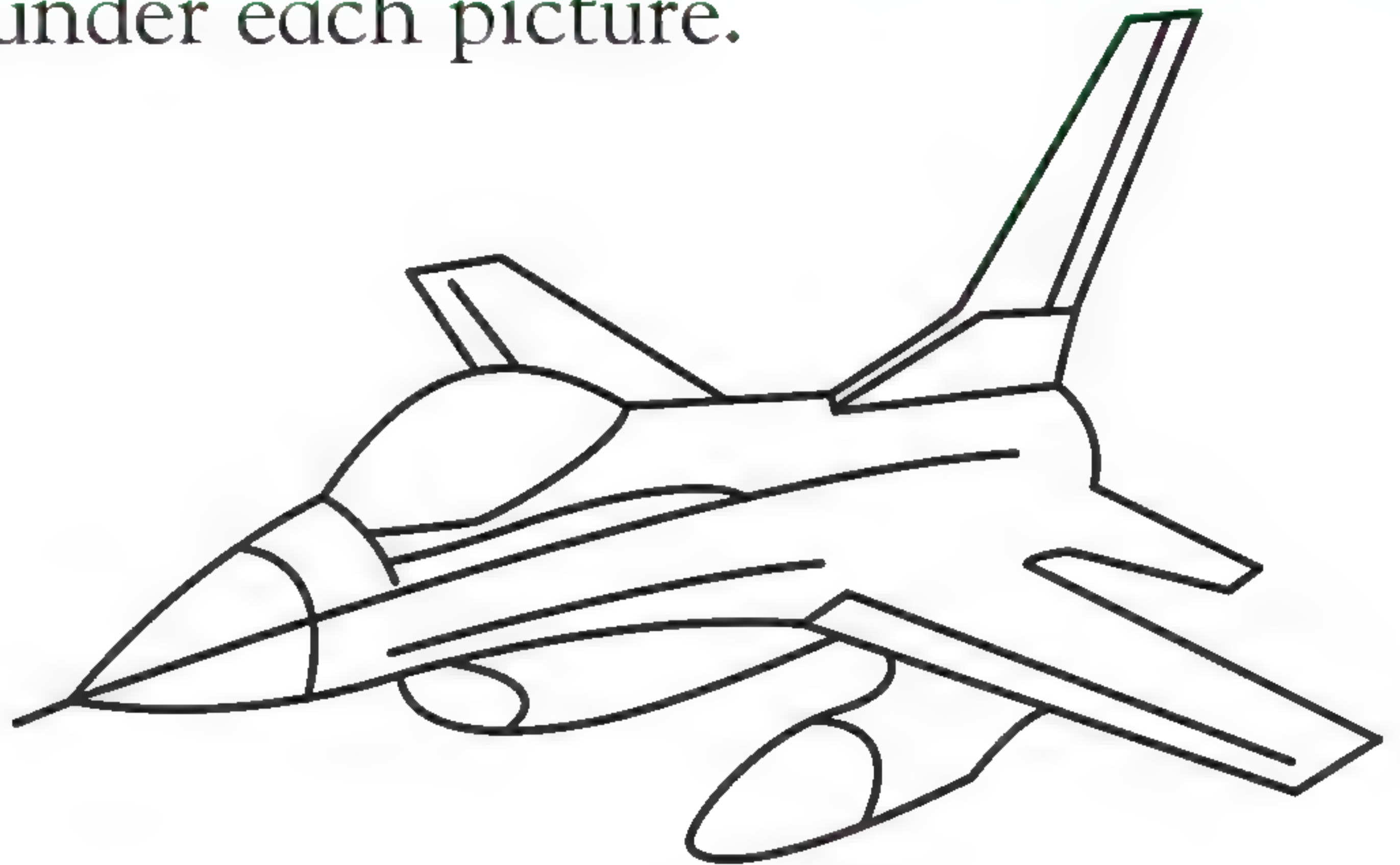


Speed is a measure of how slow or fast something moves.

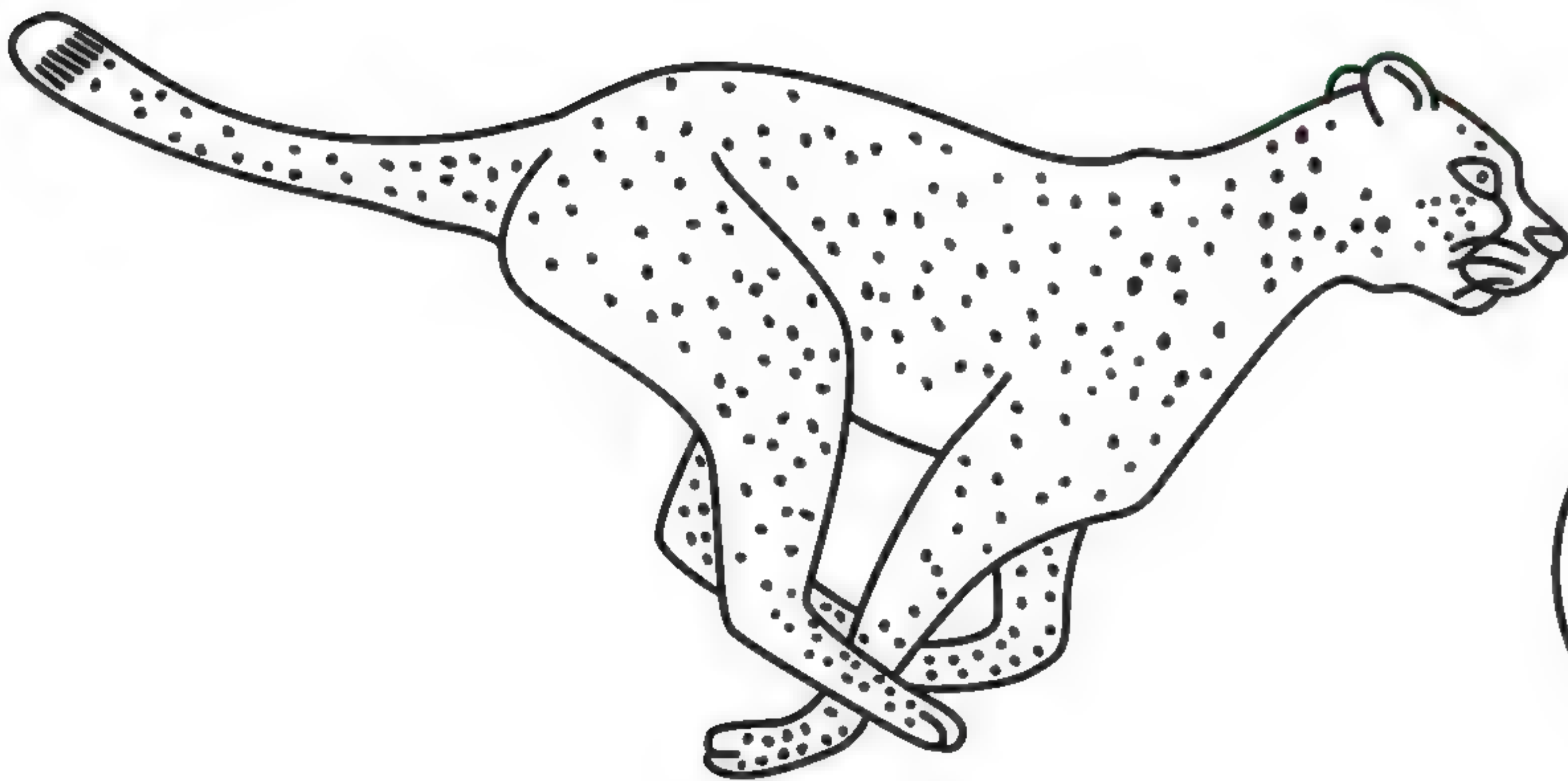
Write **F** for fast or **S** for slow under each picture.



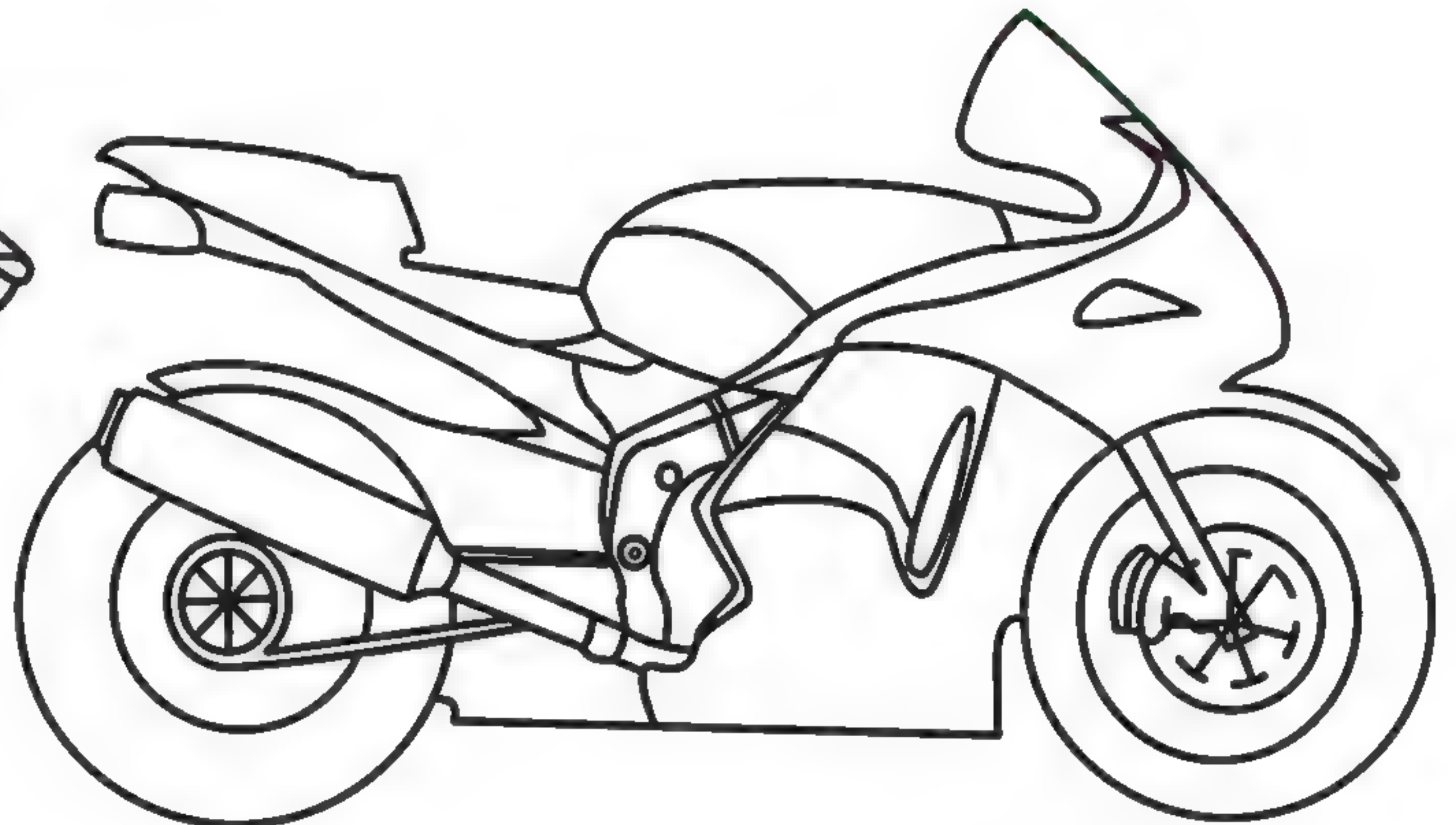
Worm



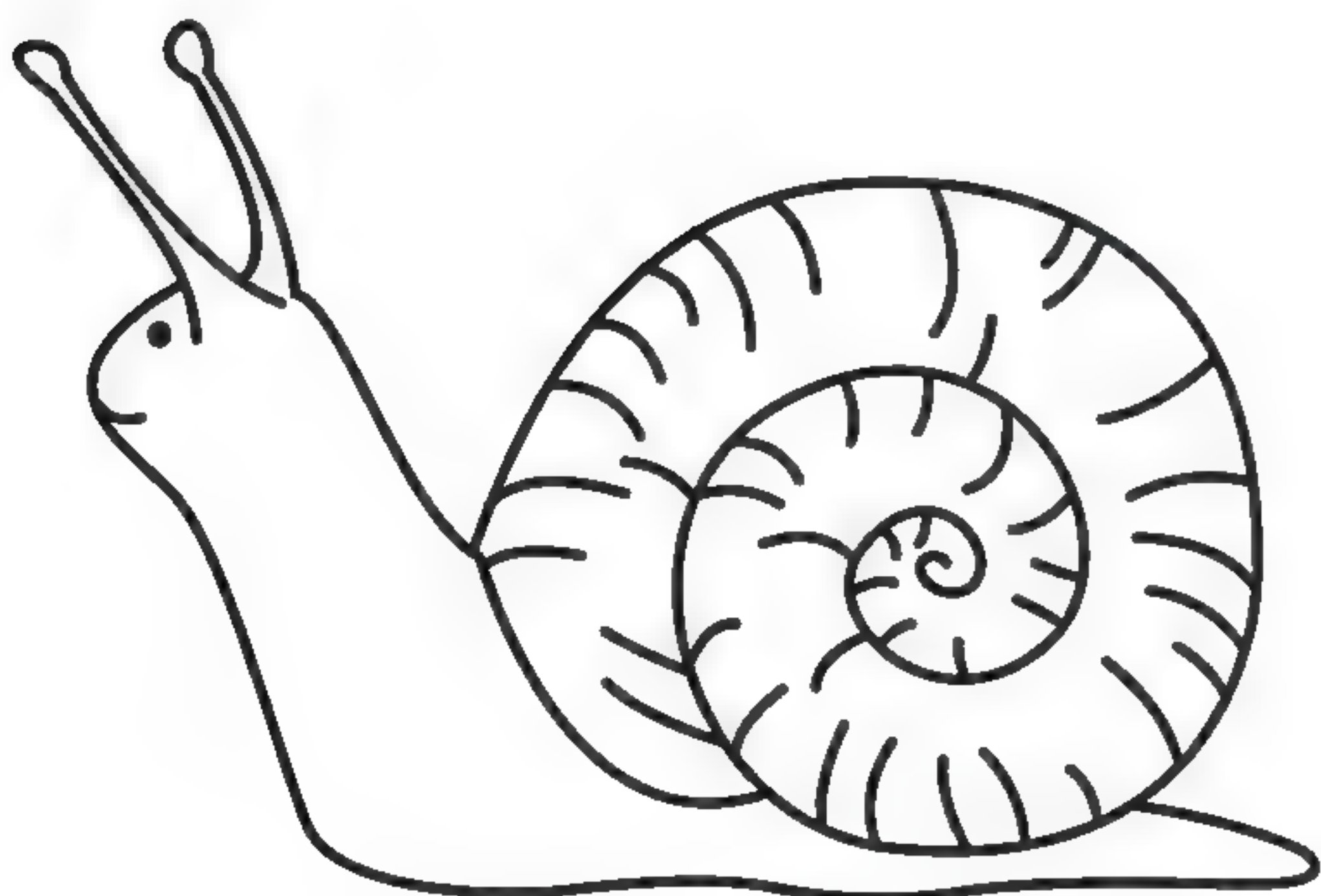
Jet



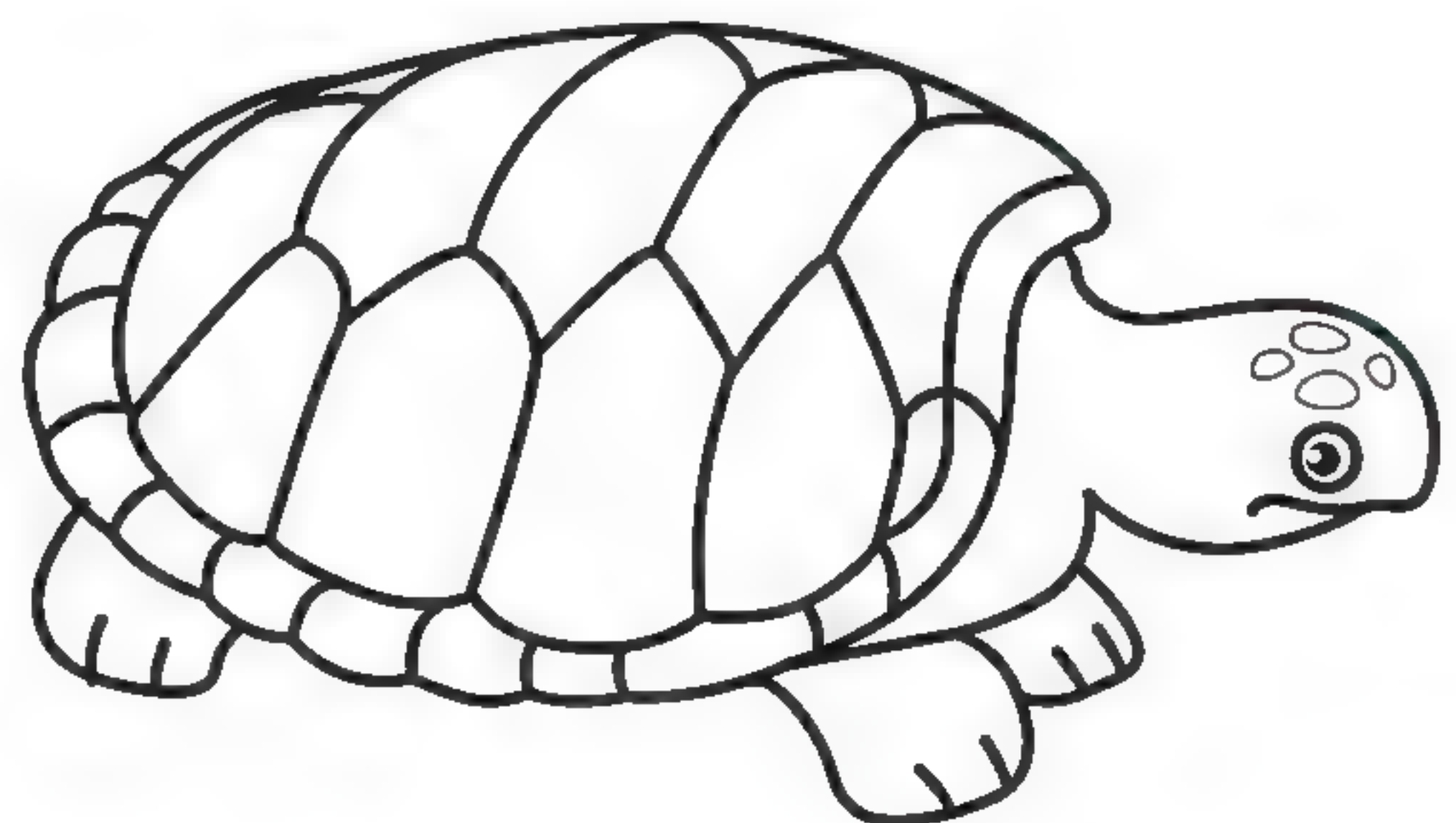
Cheetah



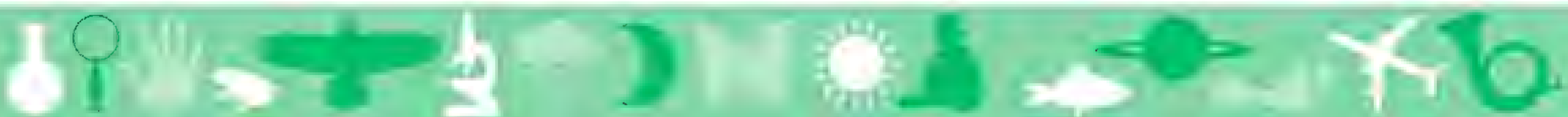
Motorcycle



Snail



Tortoise



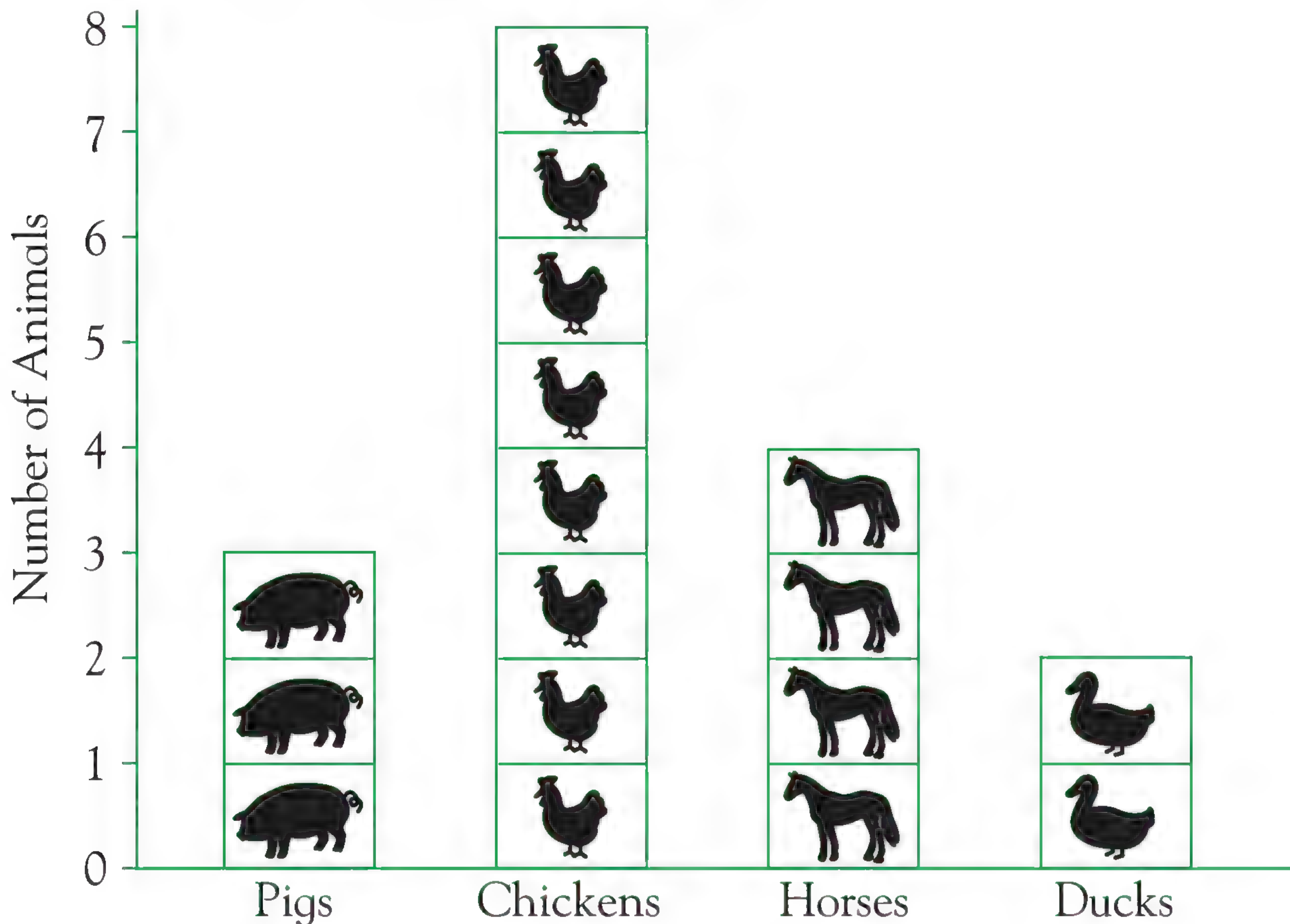


Bar Graph

FACTS

A bar graph is a way of showing information, so you can compare the facts easily.

This bar graph shows how many animals live on a farm. Look at the graph and answer the questions.



1. How many chickens live on the farm?

2. How many horses live on the farm?

3. How many pigs live on the farm?

4. Are there more pigs or more ducks on the farm?

5. How many more chickens than ducks live on the farm?





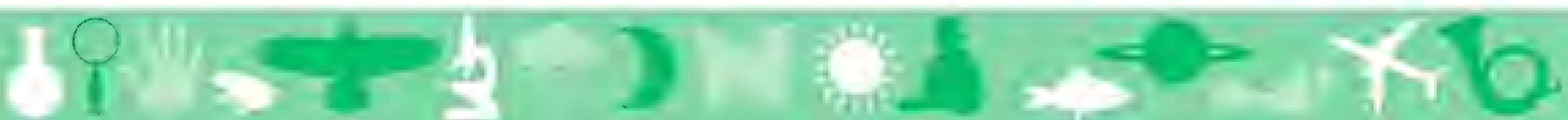
There are 24 hours in every day, and 60 minutes in each hour.

How do you spend the hours and minutes in your day?
Write your name at the top of the chart.



For one day, ask your mom, dad, or other adult to time how long it takes you to do the activities shown on the chart below. Ask the person timing you to write on the chart the number of hours or minutes you spent on each activity.

My Day:.....	
Activities	Time
Eat breakfast	
Brush teeth	
Play	
Eat lunch	
Eat dinner	
Watch television	
Read	
Brush teeth/Get ready for bed	





Matter

FACTS

Matter is the name used to describe all the different materials that make up the universe. All matter exists as a solid, liquid, or gas. A solid keeps its shape. A liquid flows, and takes the shape of the container it is in. A gas will also flow and expand and fill the container that it is in.

Answer the questions on the chart by writing **Yes** or **No** under the name of each substance named at the top of the chart. Then answer the questions under the chart.

Material	Water	Air	Penny
Will it flow?			
Does it keep its shape?			
Will it spread to fill a container?			

1. Which material is a solid?

2. Which material is a liquid?

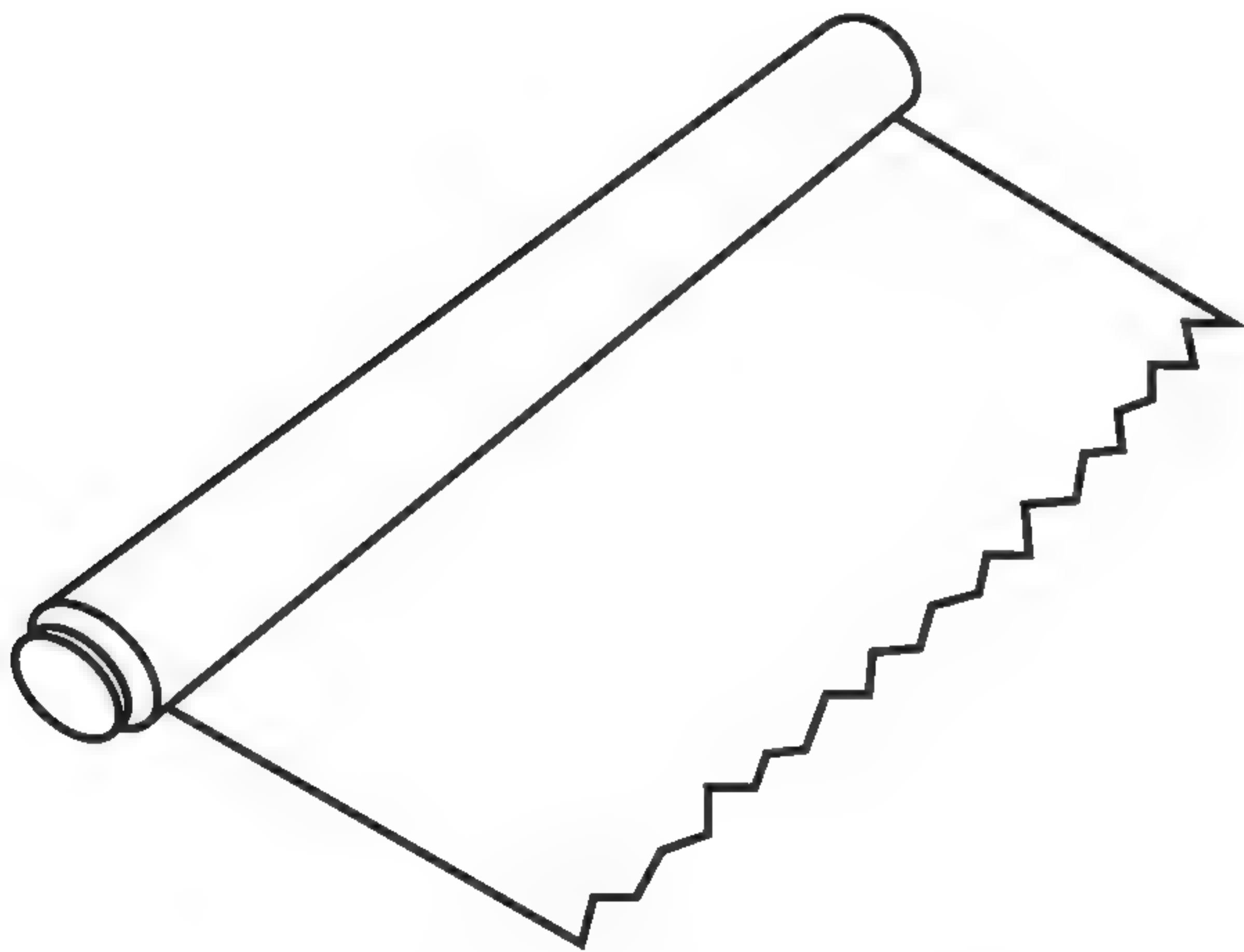
3. Which material is a gas?



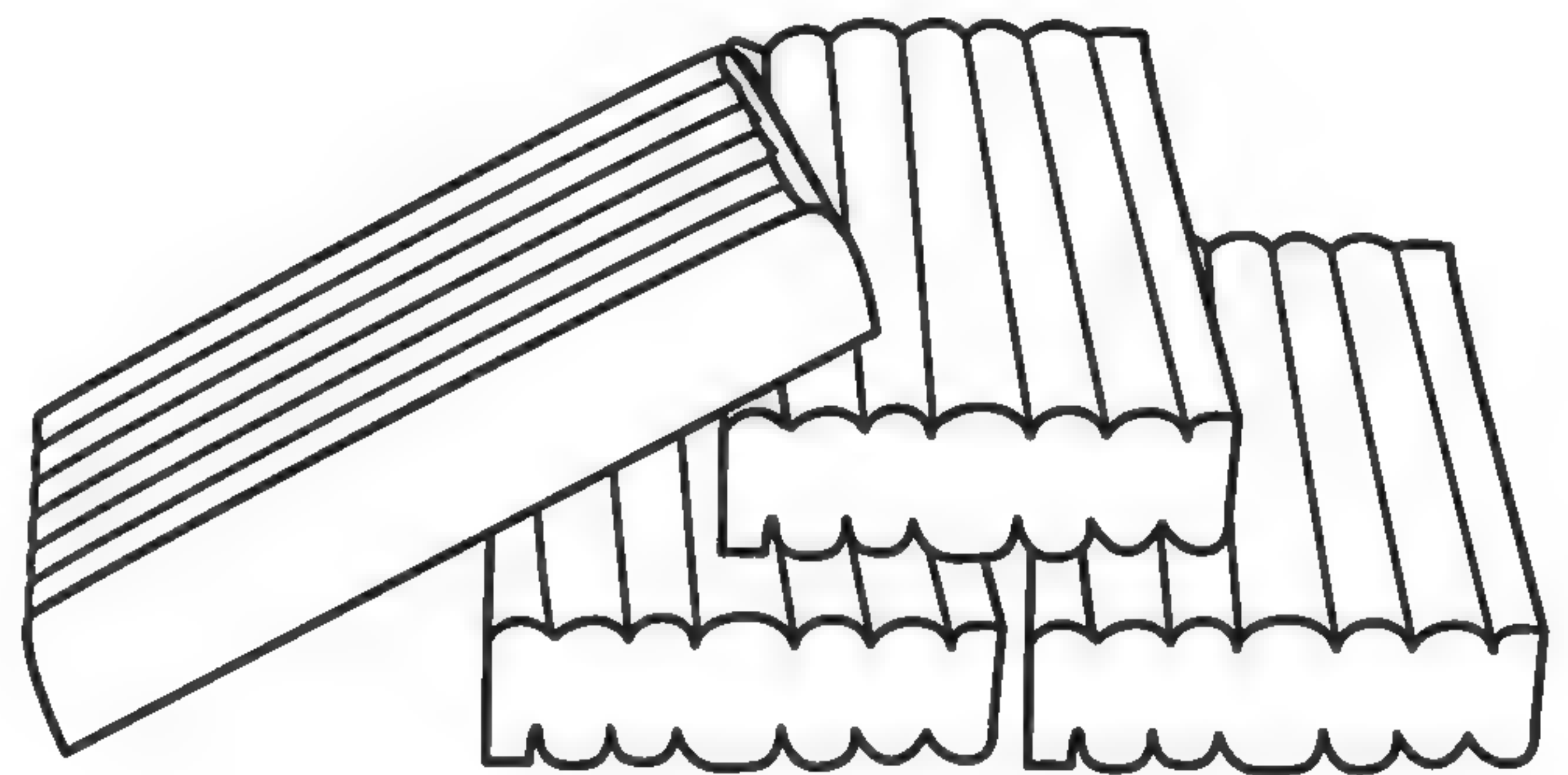


Solids do not change shape by themselves. They will not pour or spread out to fill a space.

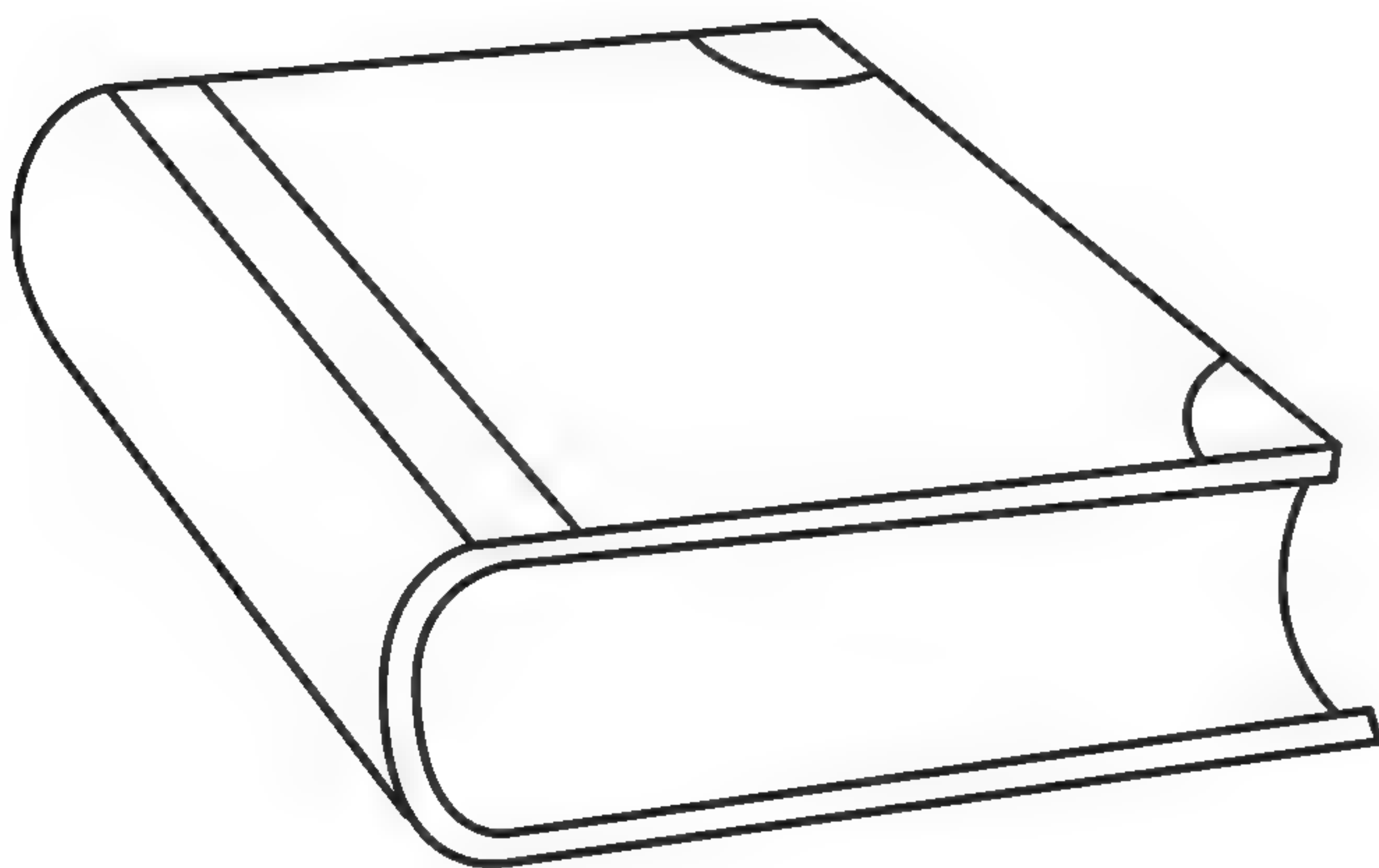
Look at the materials shown below. Put a check (✓) in the box next to the name of each one if you think it is a solid.



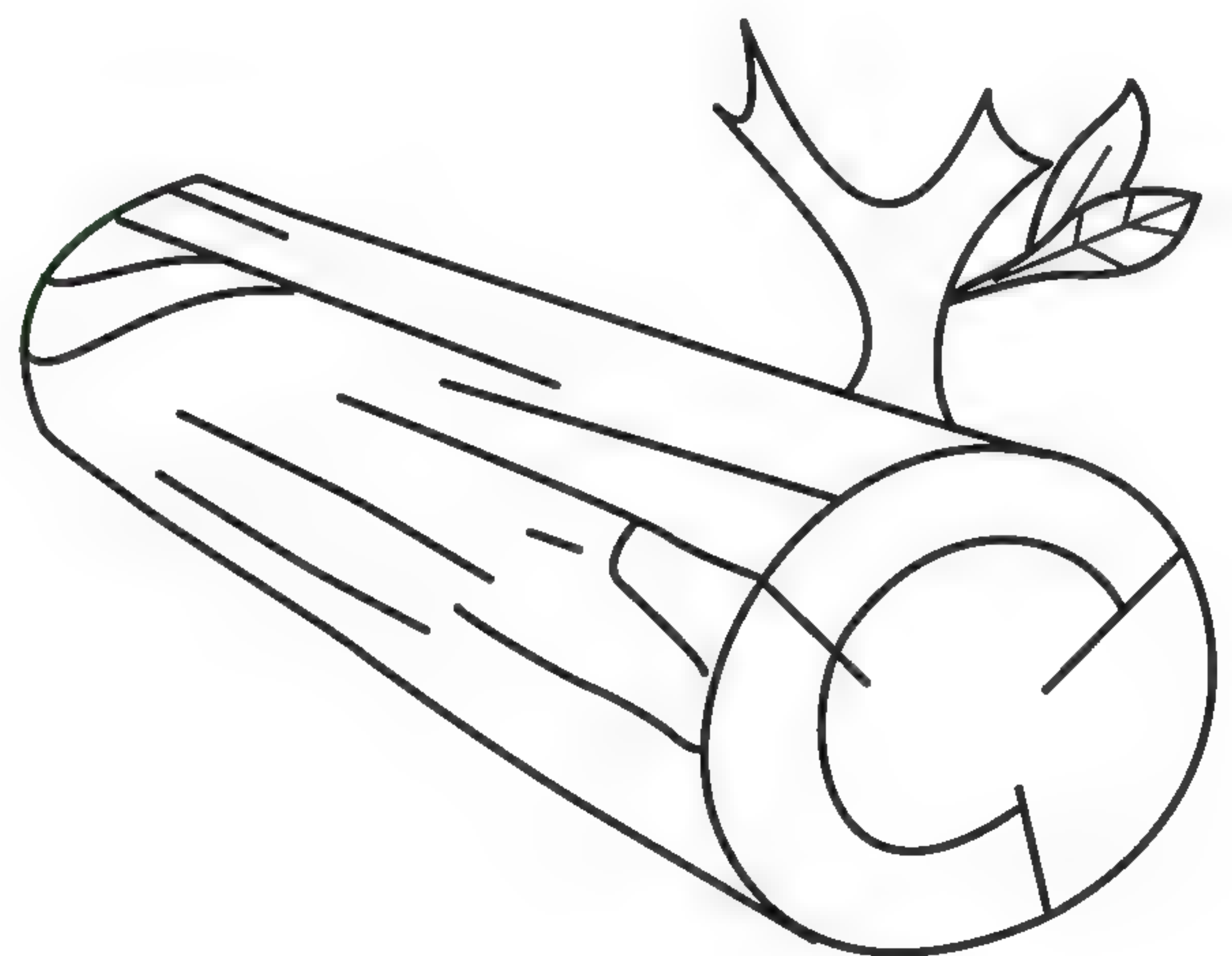
Aluminum foil

☐

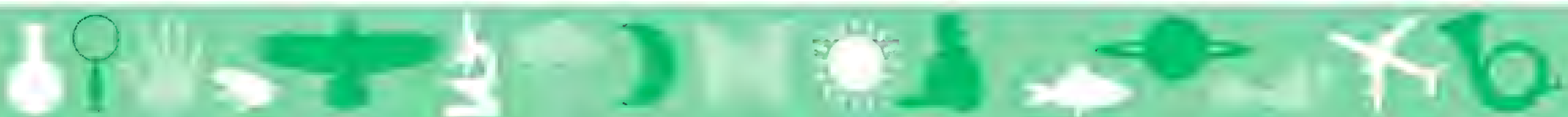
Modeling clay

☐

Book

☐

Wood

☐



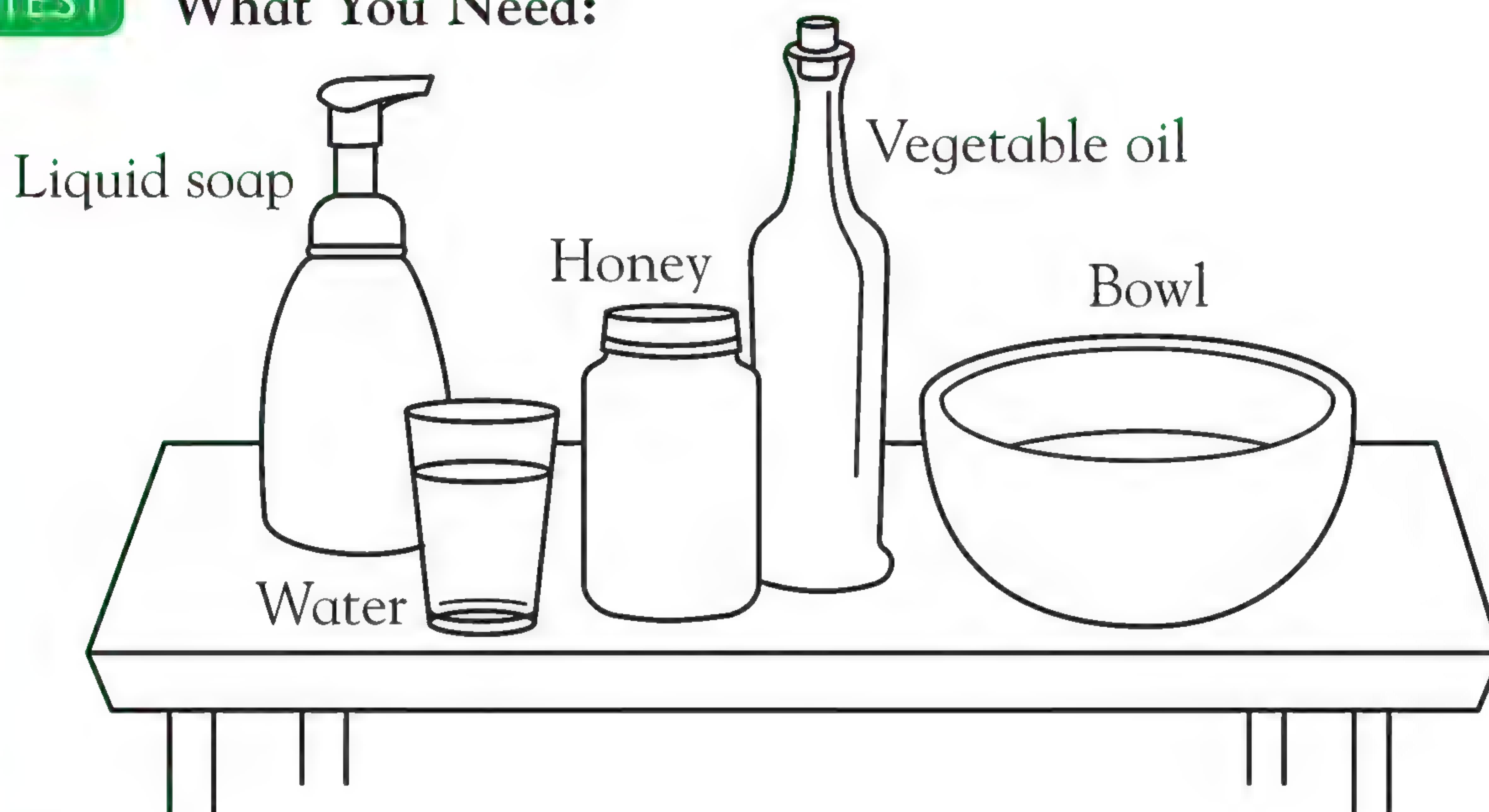
Liquids

FACTS

Liquids will flow, and take the shape of whatever container they are in. They can also be poured. Some liquids flow faster than others.

TEST

What You Need:



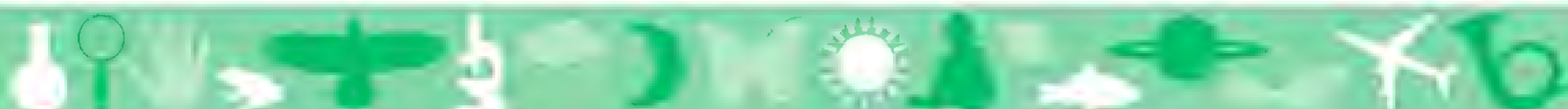
What To Do:

1. Pour a small amount of the liquid soap into the bowl. How quickly did the soap pour? Now pour a small amount of water. How quickly did that pour? Repeat with the honey and vegetable oil.
2. Make note of which liquid poured fastest and which poured slowest.

RESULT

Liquid that pours fastest

Liquid that pours slowest



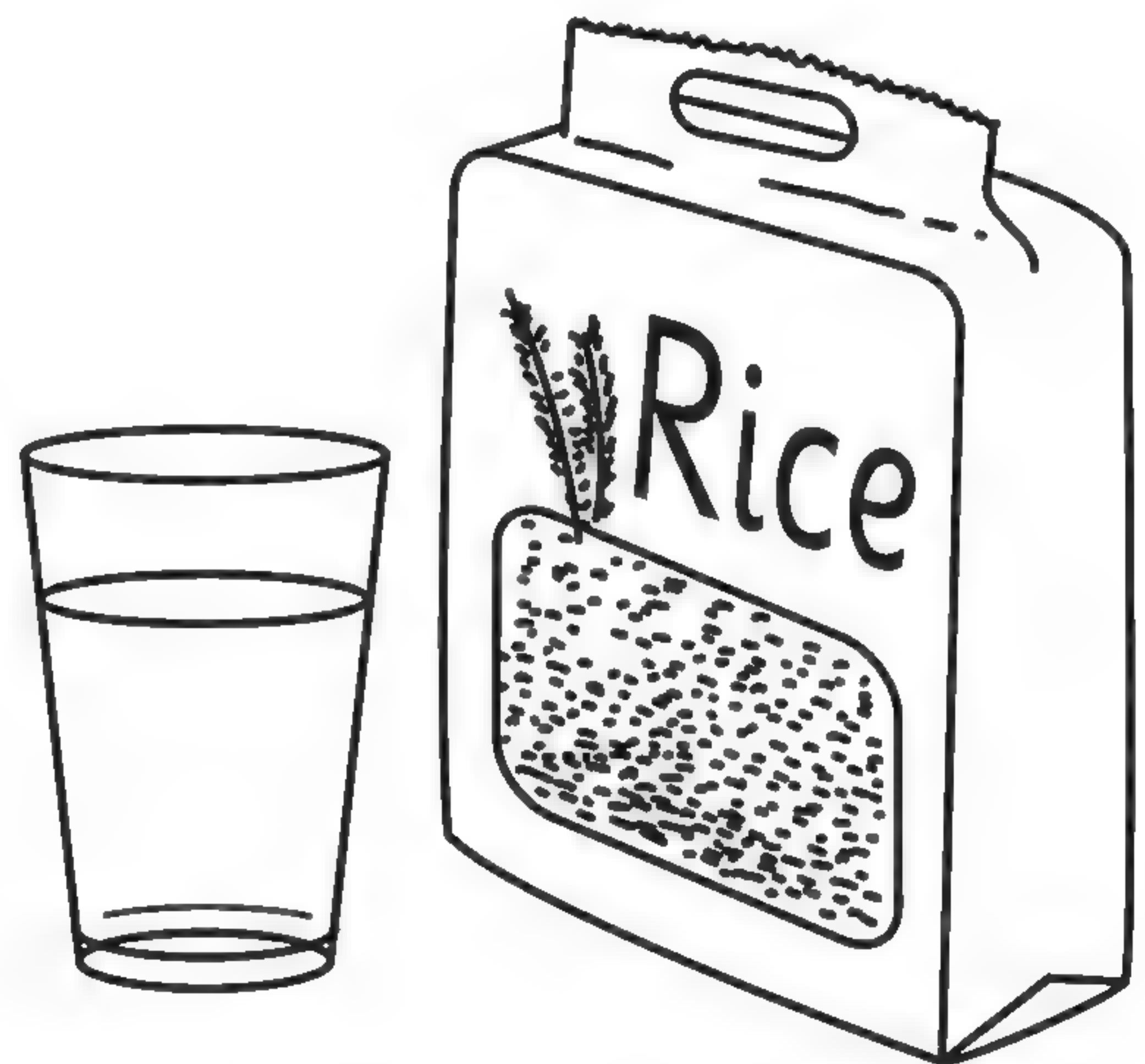


Some solids mix into liquids so that the solid seems to disappear. The solid dissolves into the liquid. This happens when you mix sugar into water. You can no longer see the sugar, but you know it is there because the water tastes sweet. Salt is another solid that dissolves in liquids. But some solids, such as pebbles or rice, will not dissolve.

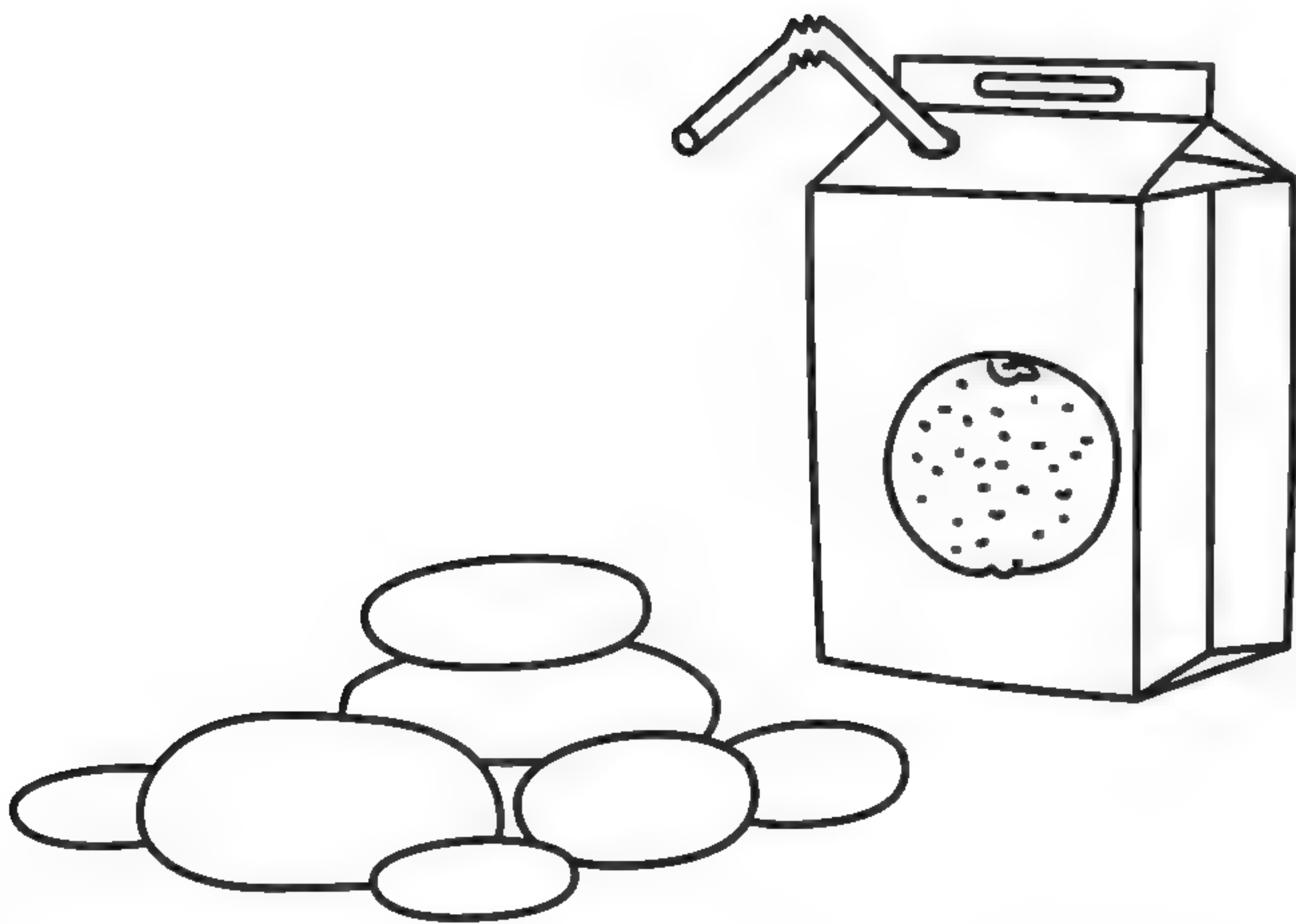
Look at the pictures below. Each one shows a solid next to a liquid. Circle the two solid and liquid pairs where the solid will dissolve into the liquid.



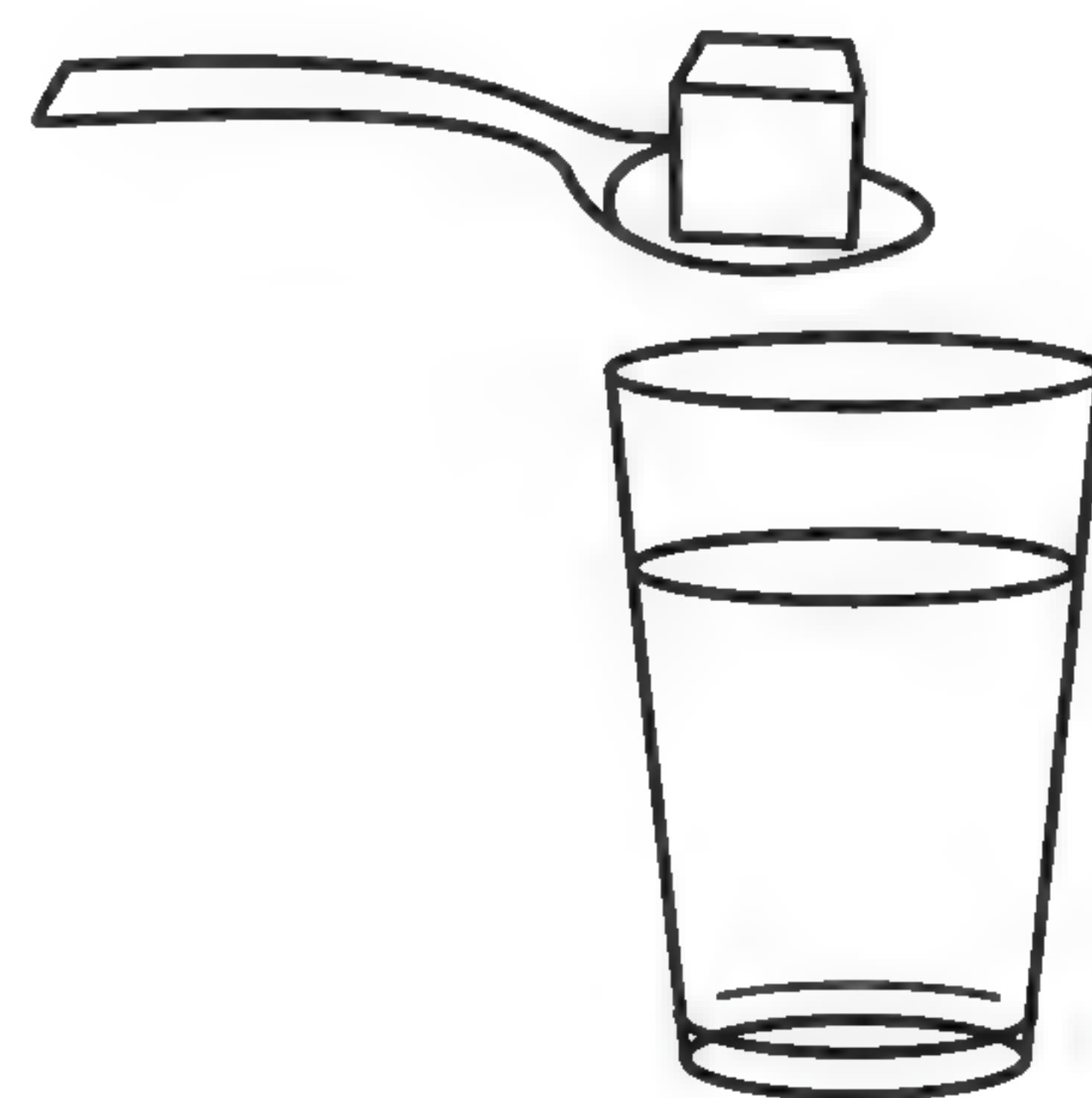
Soup and salt



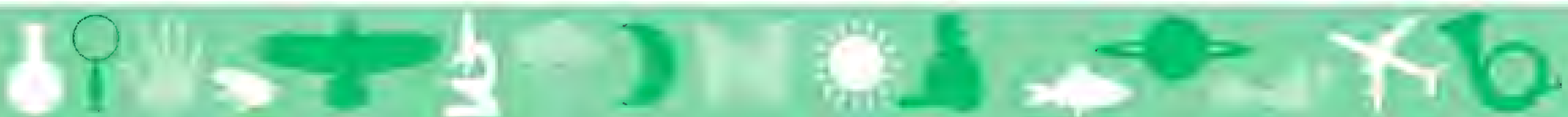
Water and rice



Juice and pebbles



Water and sugar





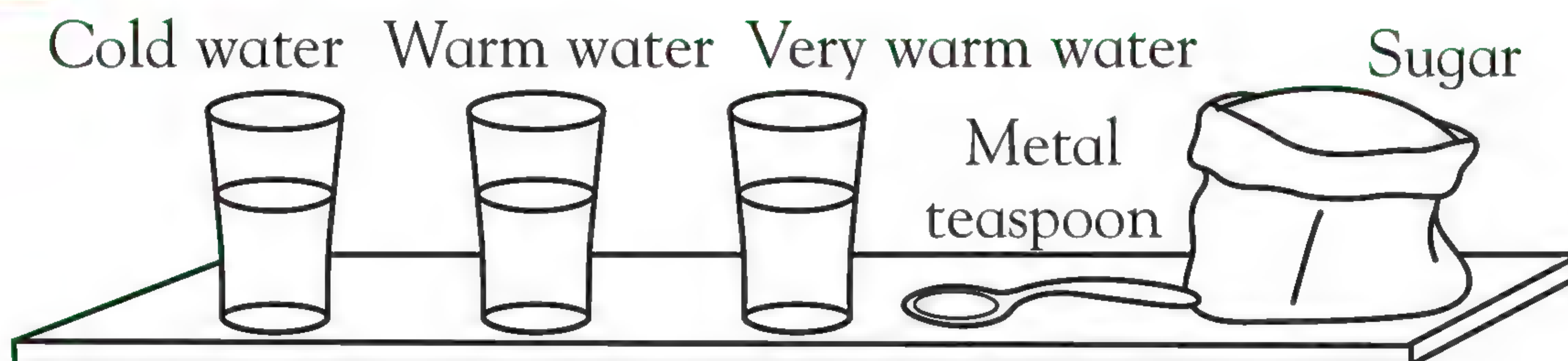
Heat and Dissolving

FACTS

How hot or cold a liquid is can make a difference to how quickly a solid will dissolve in it.

TEST

What You Need:



What To Do:

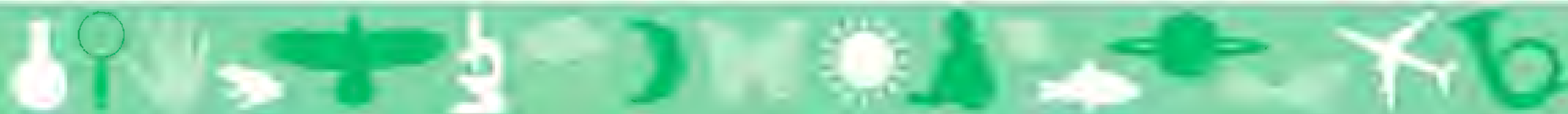
1. Take three glasses. Fill one halfway with cold water, another with warm water, and the third with very warm water.
2. Stir a teaspoon of the sugar into the cold water, counting how many times you have to stir until the sugar has completely dissolved. Make a note of the number of stirs on the chart.
3. Repeat Step 2, stirring a teaspoon of sugar into the warm water. Again count and note the number of stirs it takes for the sugar to completely dissolve. Repeat again, stirring sugar into the very warm water.

RESULT

Look at your results on the chart and answer the question.

Water at Different Temperatures	Number of Stirs
Cold water	
Warm water	
Very warm water	

Does the sugar dissolve faster as the water gets hotter?





Air is a mixture of invisible gases. You cannot see it, but you can feel it blowing on a windy day. Just like solids and liquids, gases have weight, and some gases are heavier than others. A balloon filled with a light gas will float up higher than a balloon filled with a heavier gas.

Look at the picture below. The balloon with the swirly dots is filled with a very light gas. The stripy balloon is filled with a heavier gas. The balloon with the clouds on it is filled with the heaviest gas.

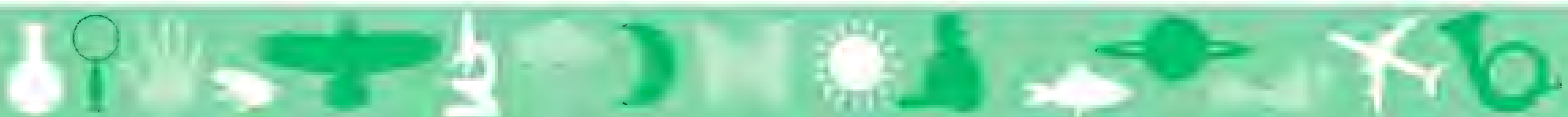


1. Point to the balloon with the heaviest gas.

2. Point to the balloon with the lightest gas.

3. Is the stripy balloon heavier or lighter than the balloon with the swirly dots?

.....



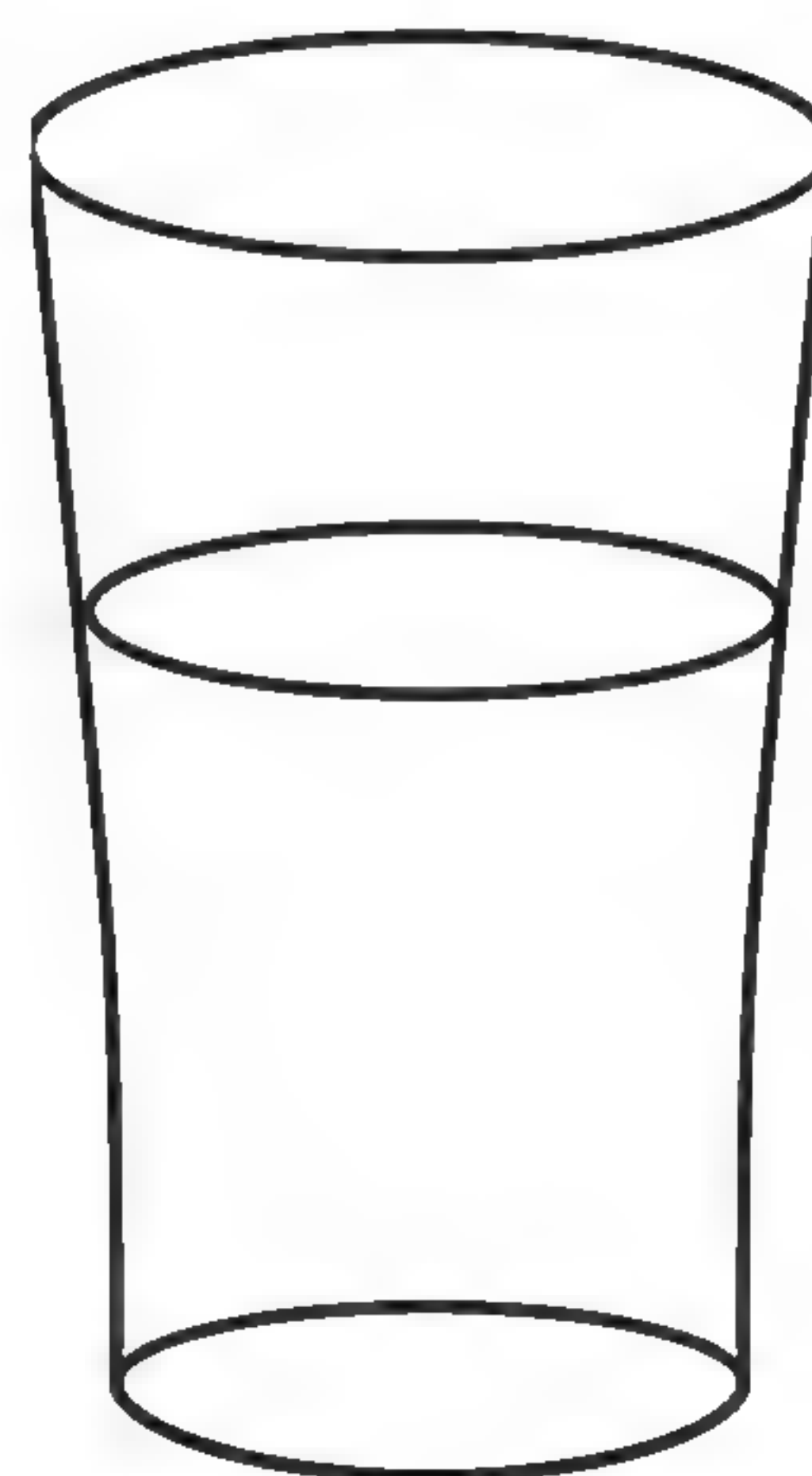
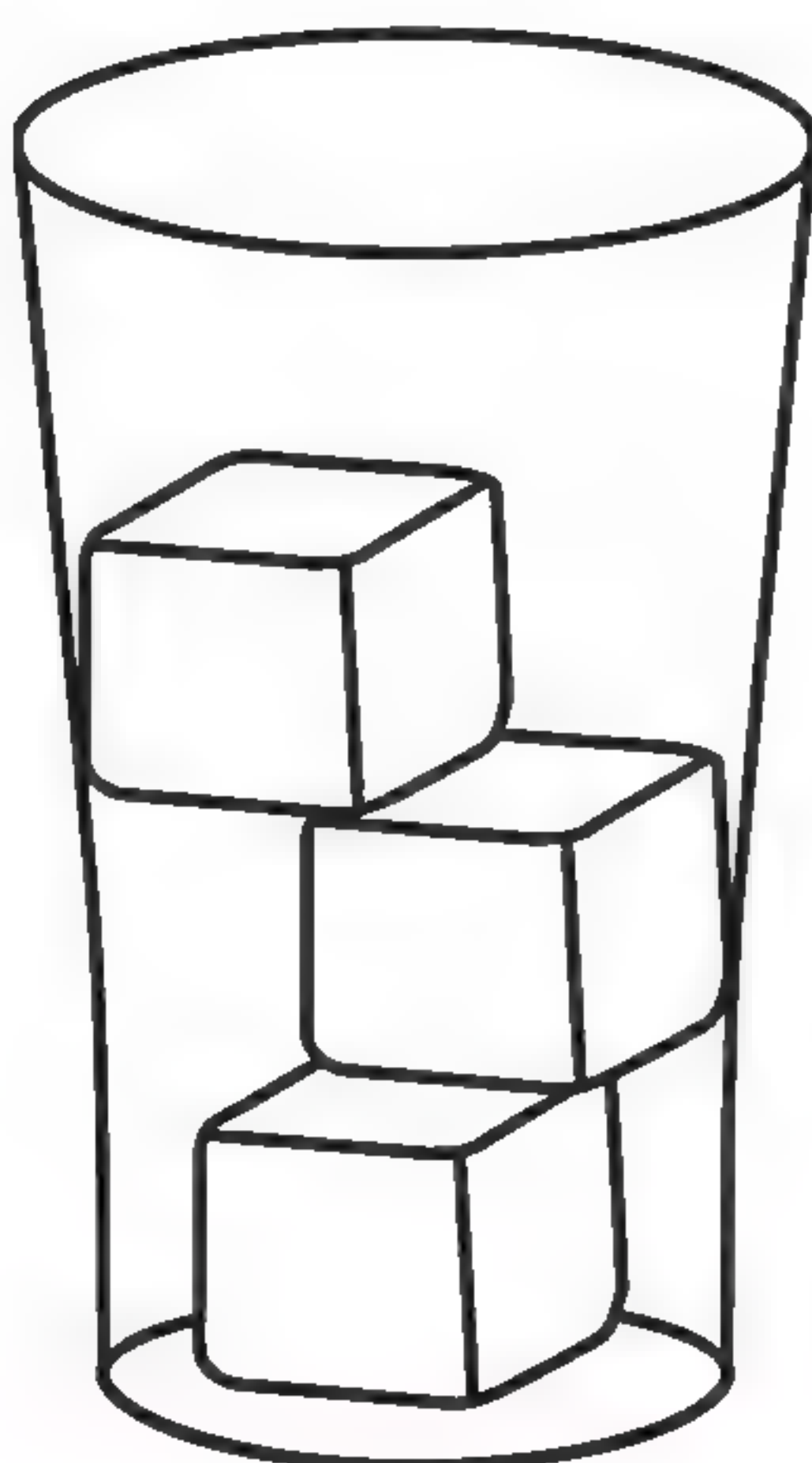
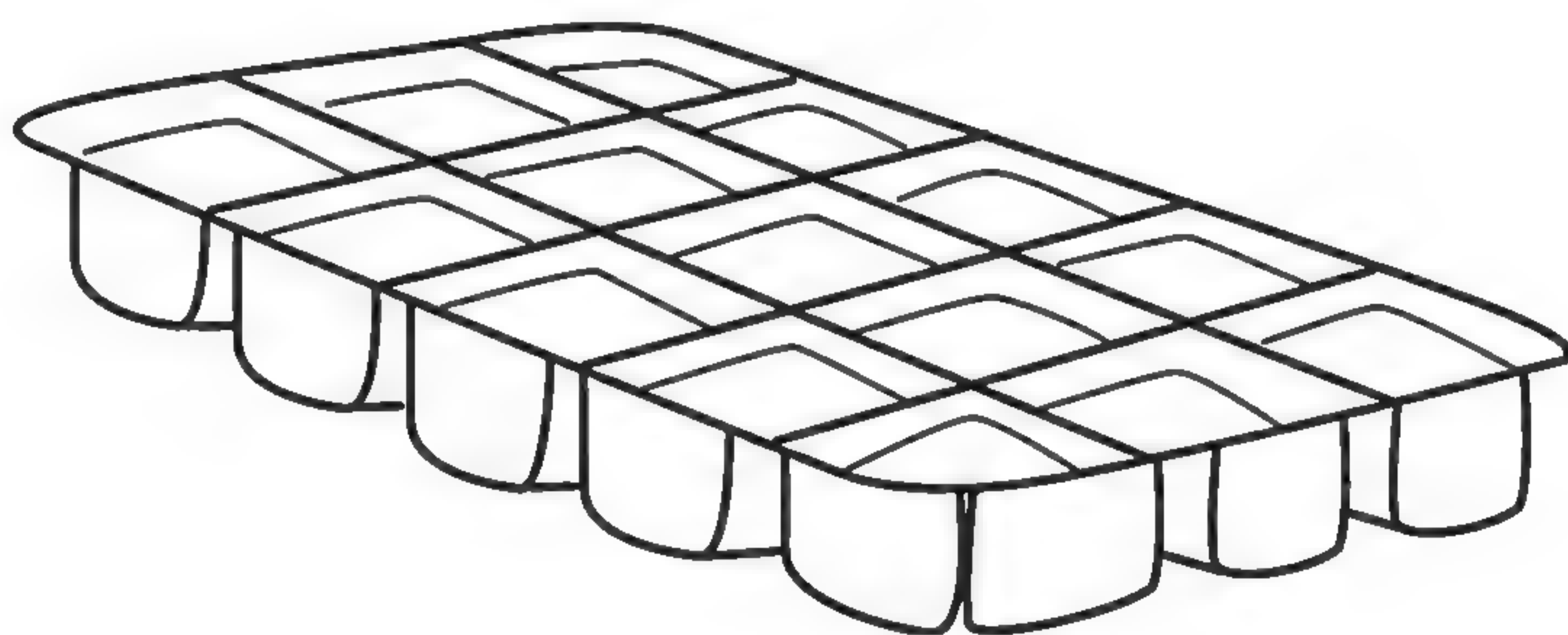


Water

FACTS

Water is usually a liquid, but it can also exist as a solid or gas. When you put water in the freezer, it turns into a solid by becoming ice. When your mom or dad boils water on the stove, it turns into a gas by becoming steam.

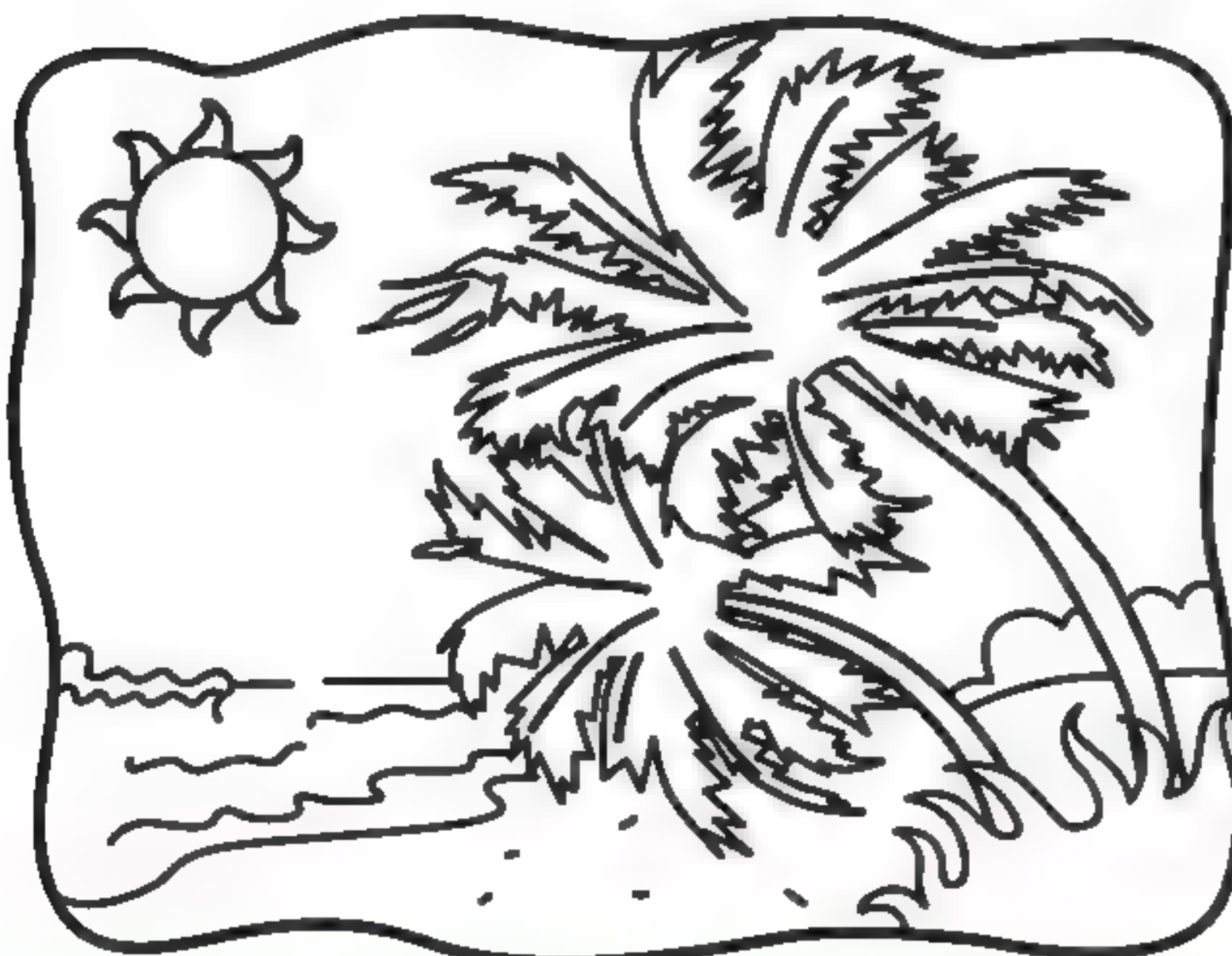
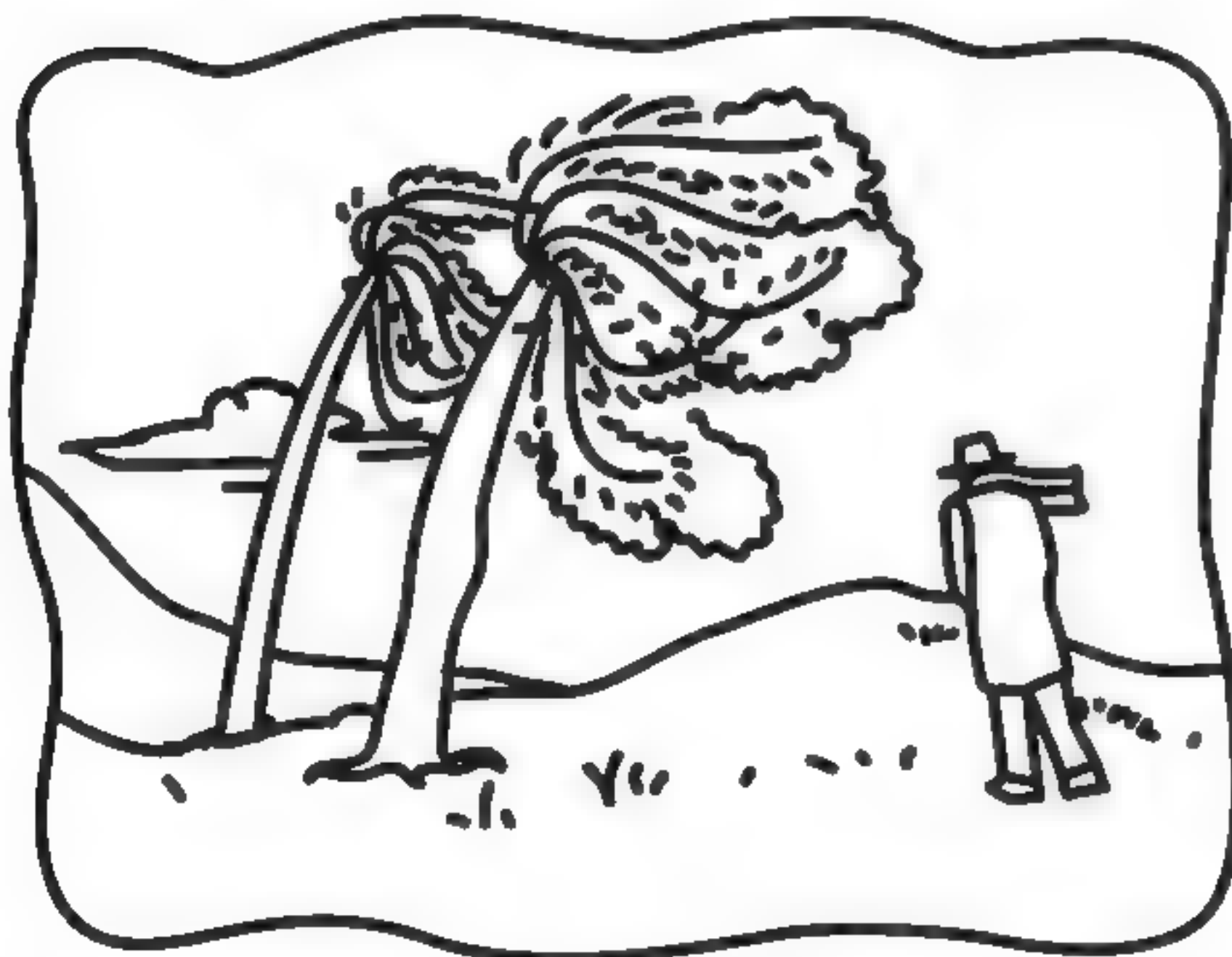
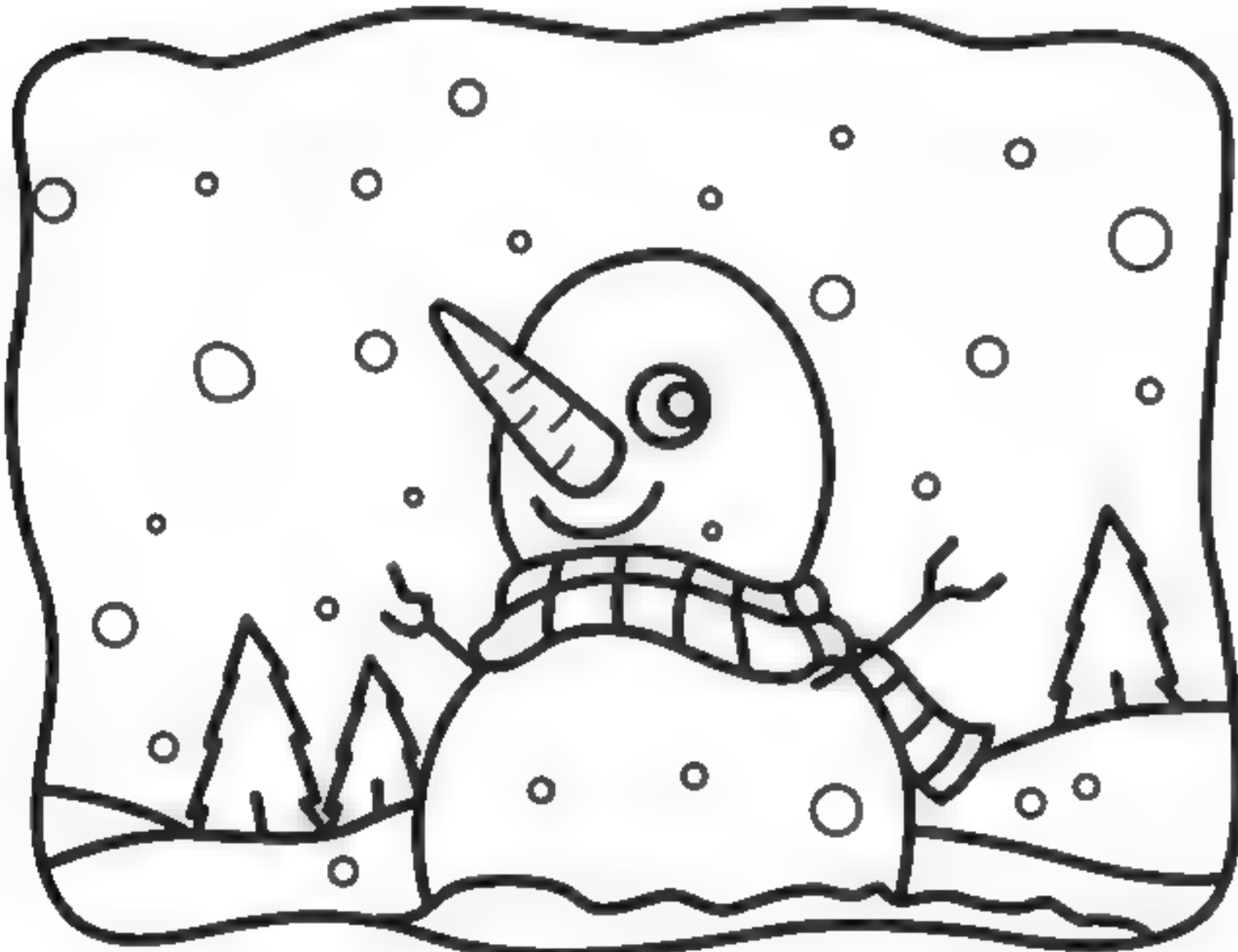
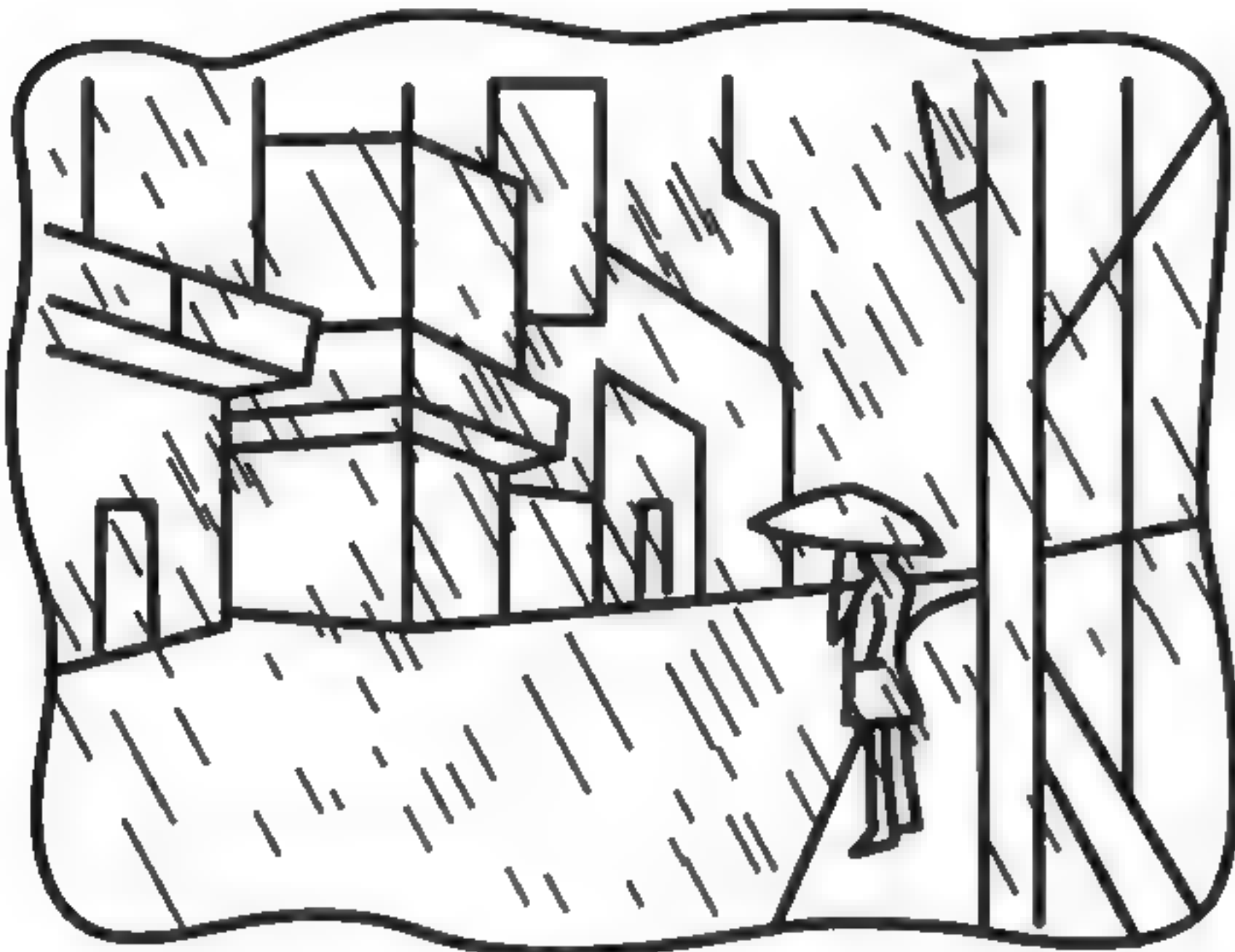
Look at the images below. Circle the images where water is a liquid. Make a square around the images where water is a gas. Make a triangle around the images where water is a solid.





Scientists can tell us what kind of weather we are likely to have in the days and even weeks to come. This helps us prepare for our day, and choose what to wear (and bring) when we go out.

Look at the four scenes below. Then look at the clothes. Draw a line between each scene and the best clothes for the weather shown.



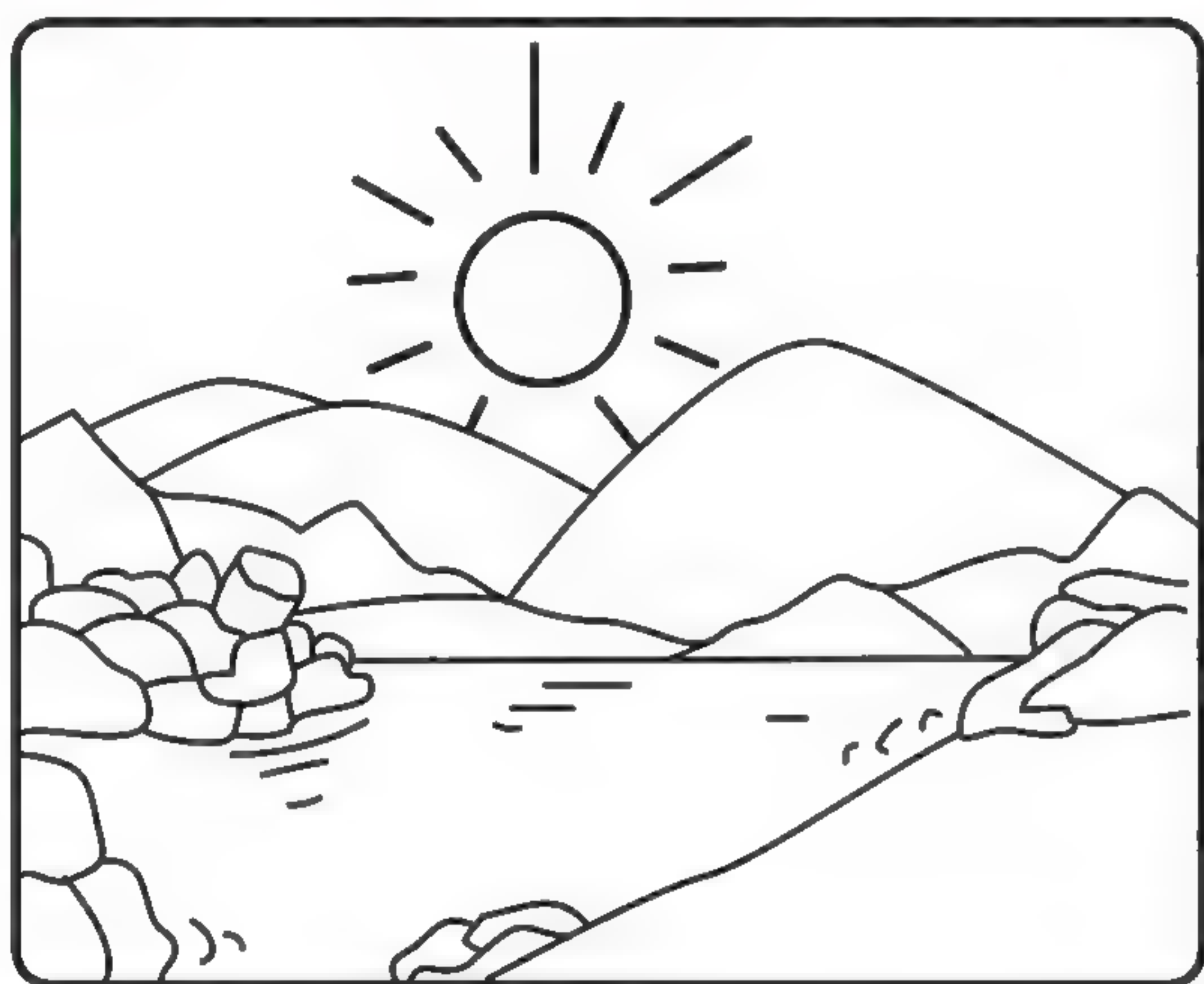


The Sun

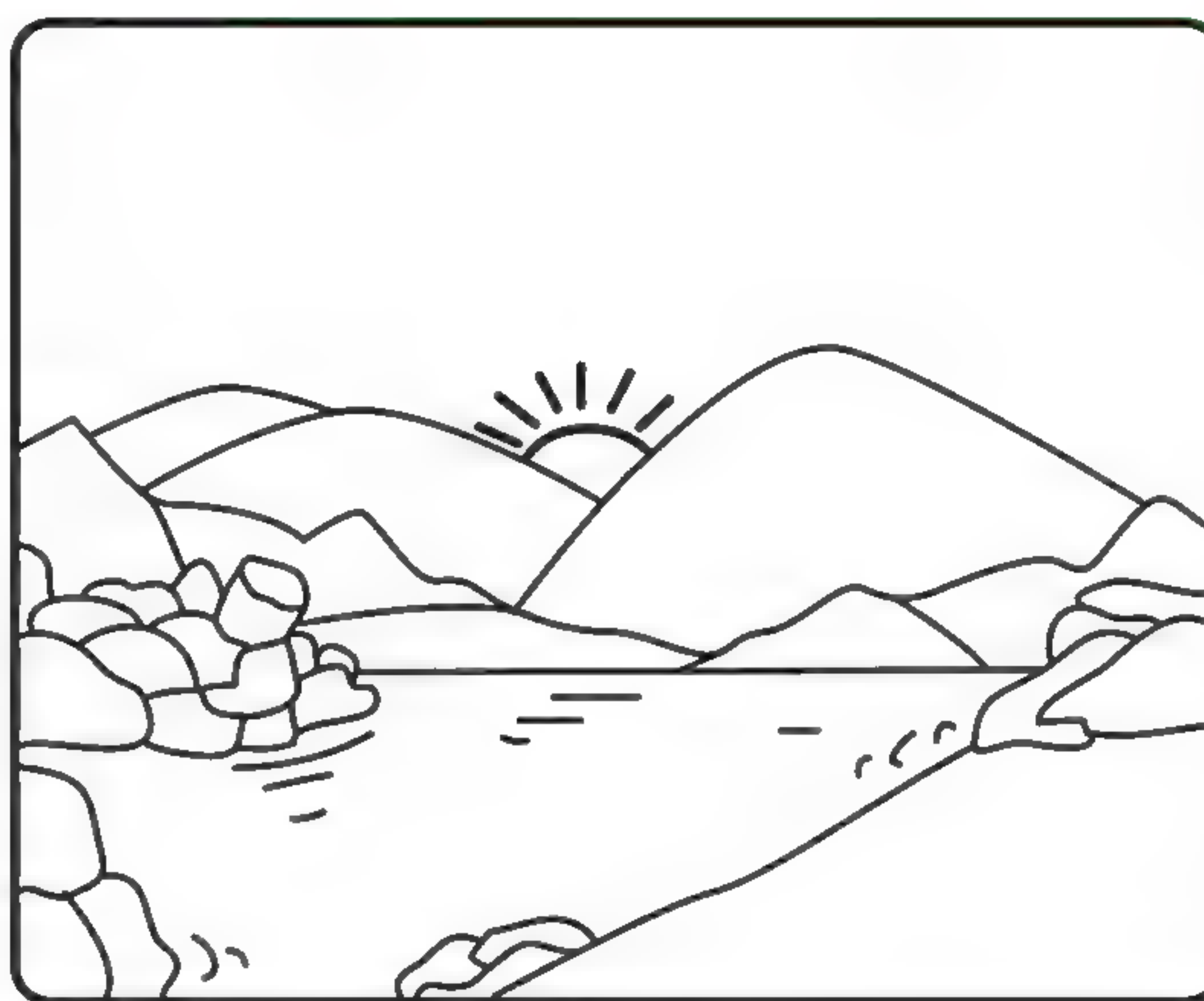
FACTS

The sun provides light and heat to Earth. The sun is always shining, but we do not always see that. Each day Earth spins around once. As Earth spins, the part facing the sun experiences day time. That part goes through morning and afternoon. As it continues to turn, it slowly turns into night while another part of Earth faces the sun and experiences day time.

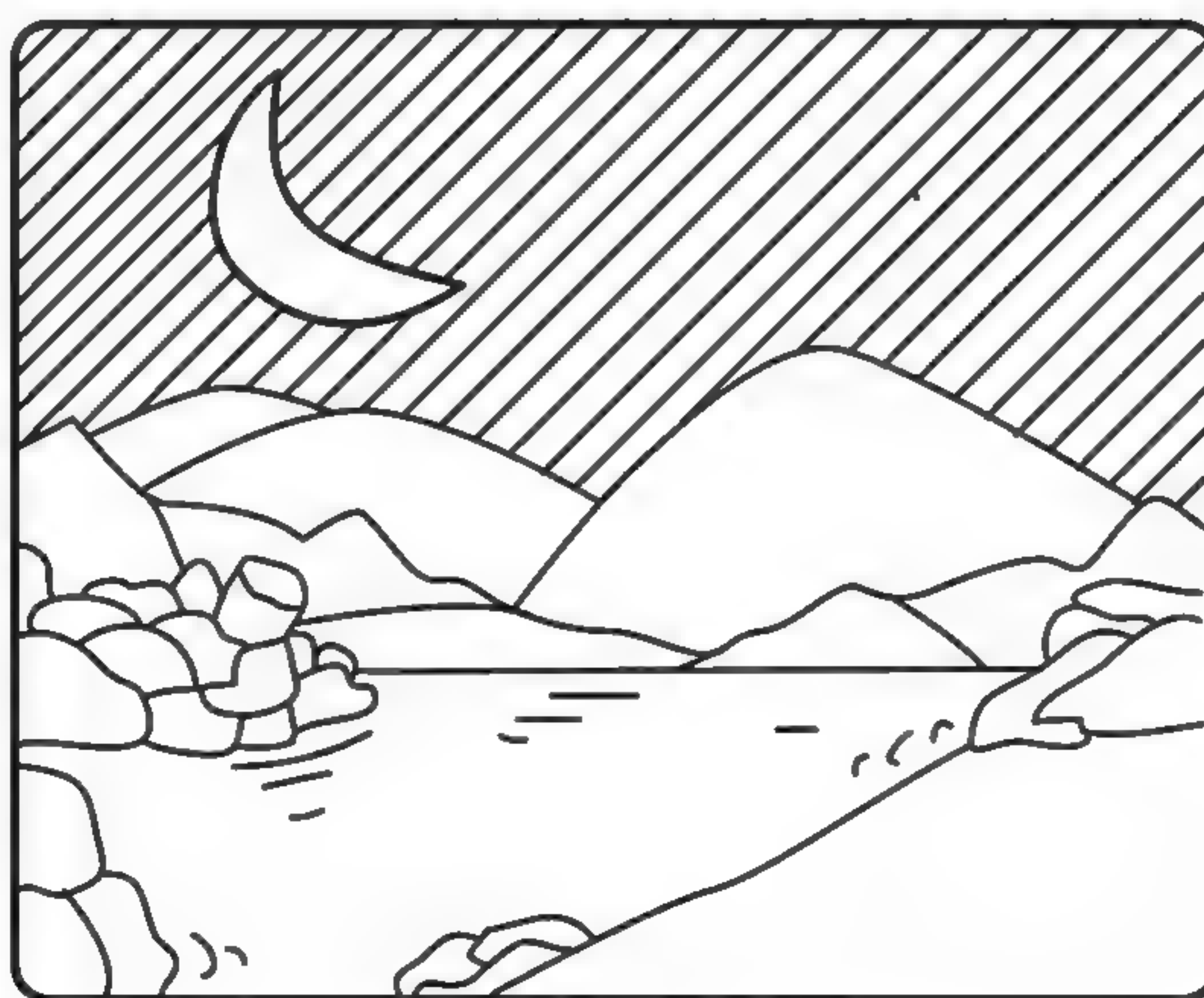
Look at the three scenes shown below.



1

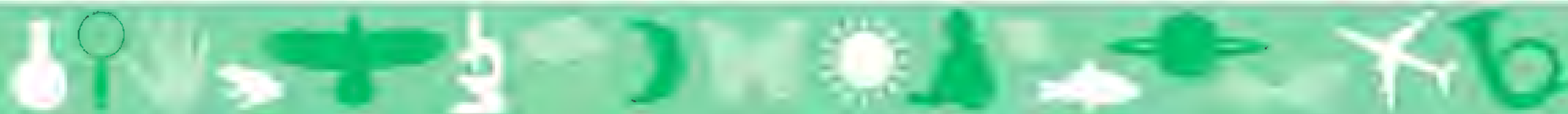


2



3

1. In which scene is the hillside facing away from the sun?
2. In which scene is the hillside facing the sun?
3. In which scene is the hillside turned halfway away from the sun?





The moon is a ball of rock that circles Earth about once a month. It looks like it changes shape throughout the month, but it does not. What we see depends on how much light is shining on the moon. The different moon shapes we see are called phases. There are four key phases. A new moon is almost invisible. A full moon looks like a complete circle. A half moon looks like a half circle, and a crescent moon looks like a thin crescent shape.

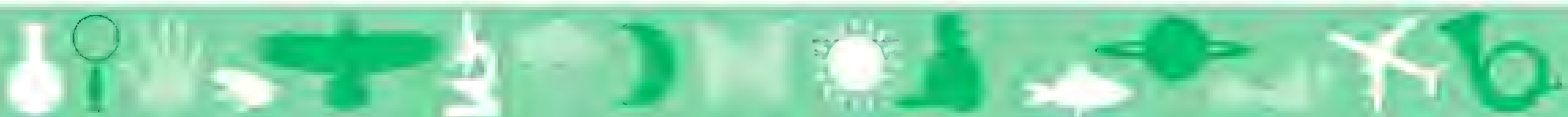
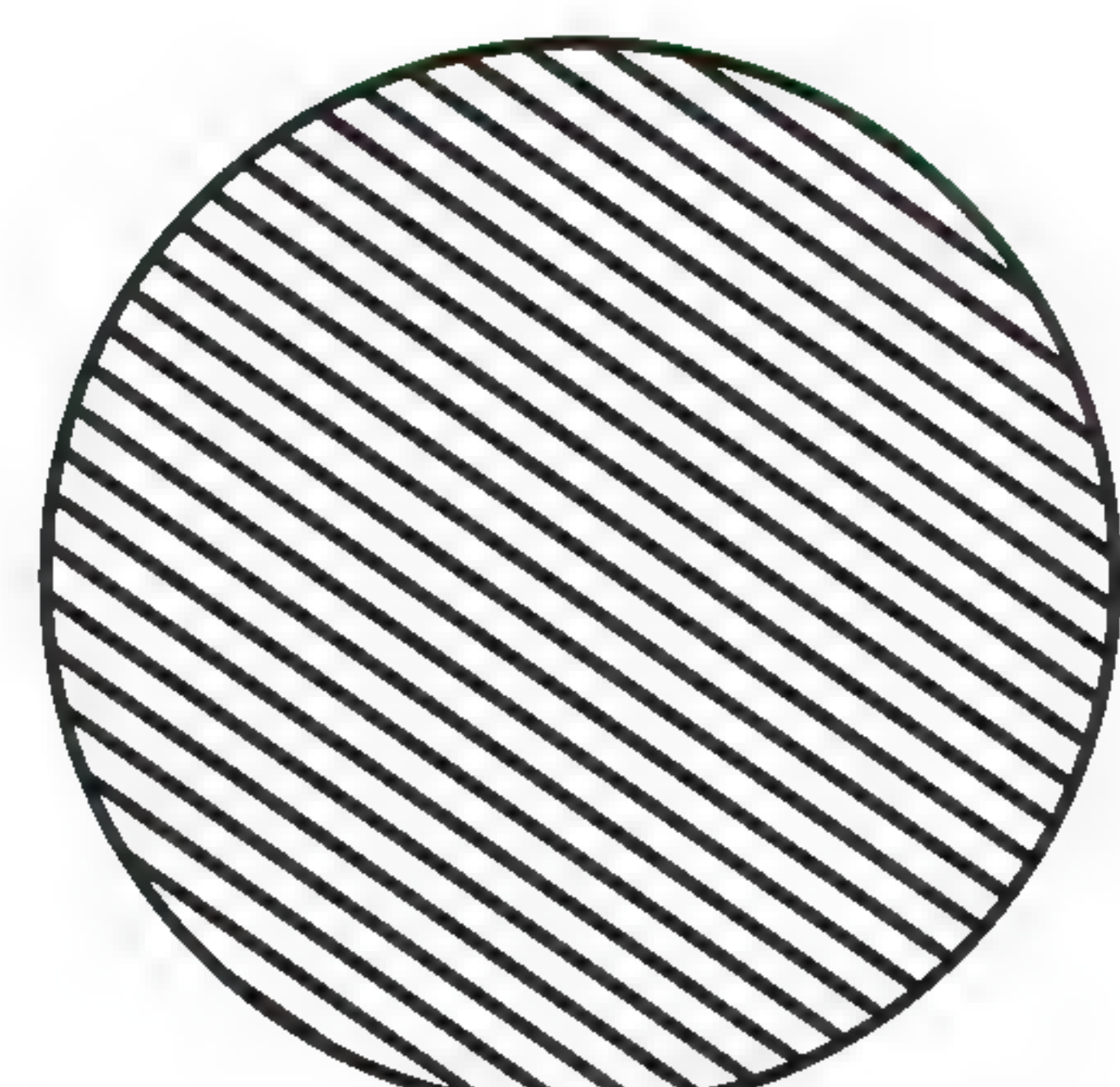
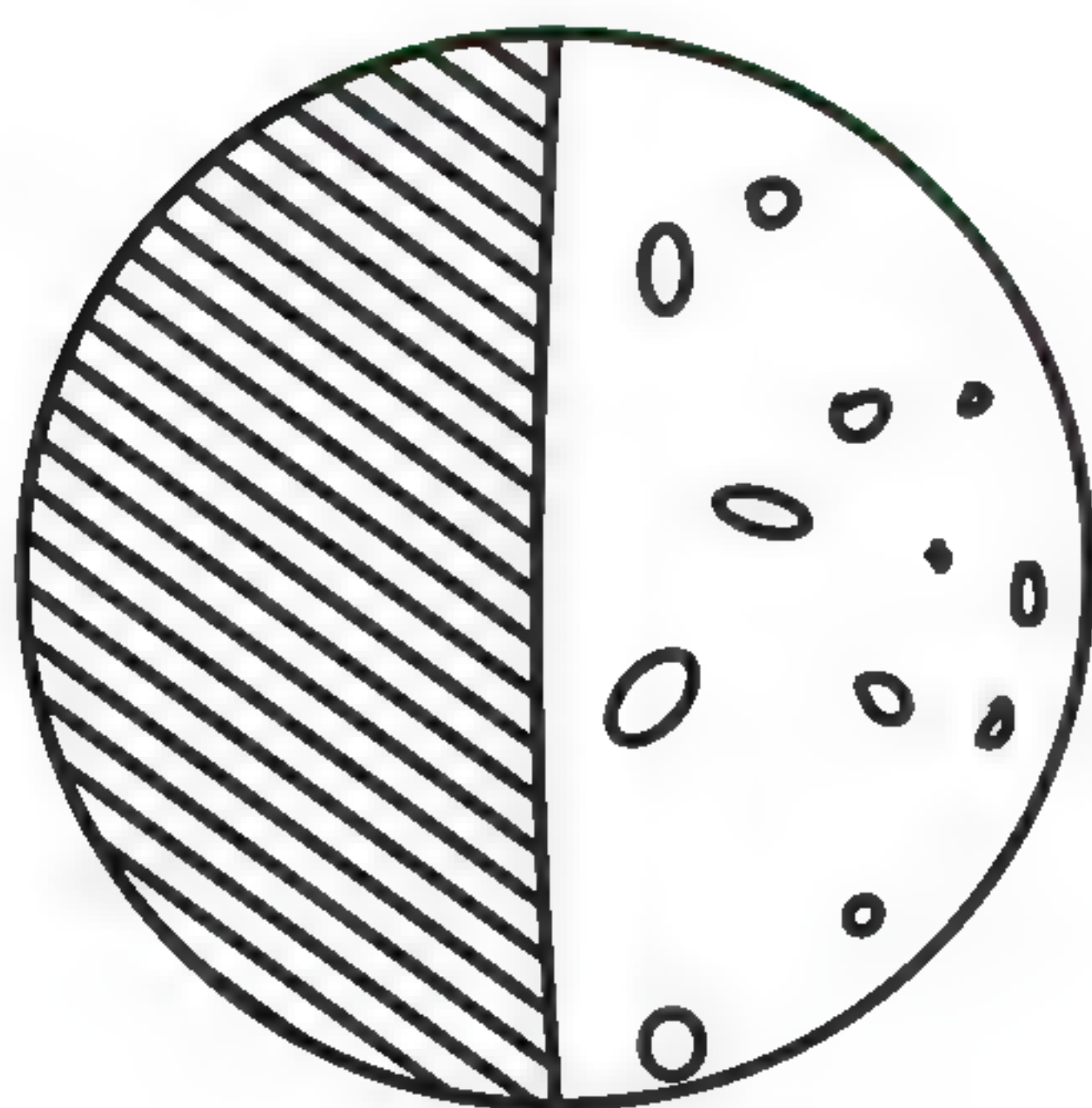
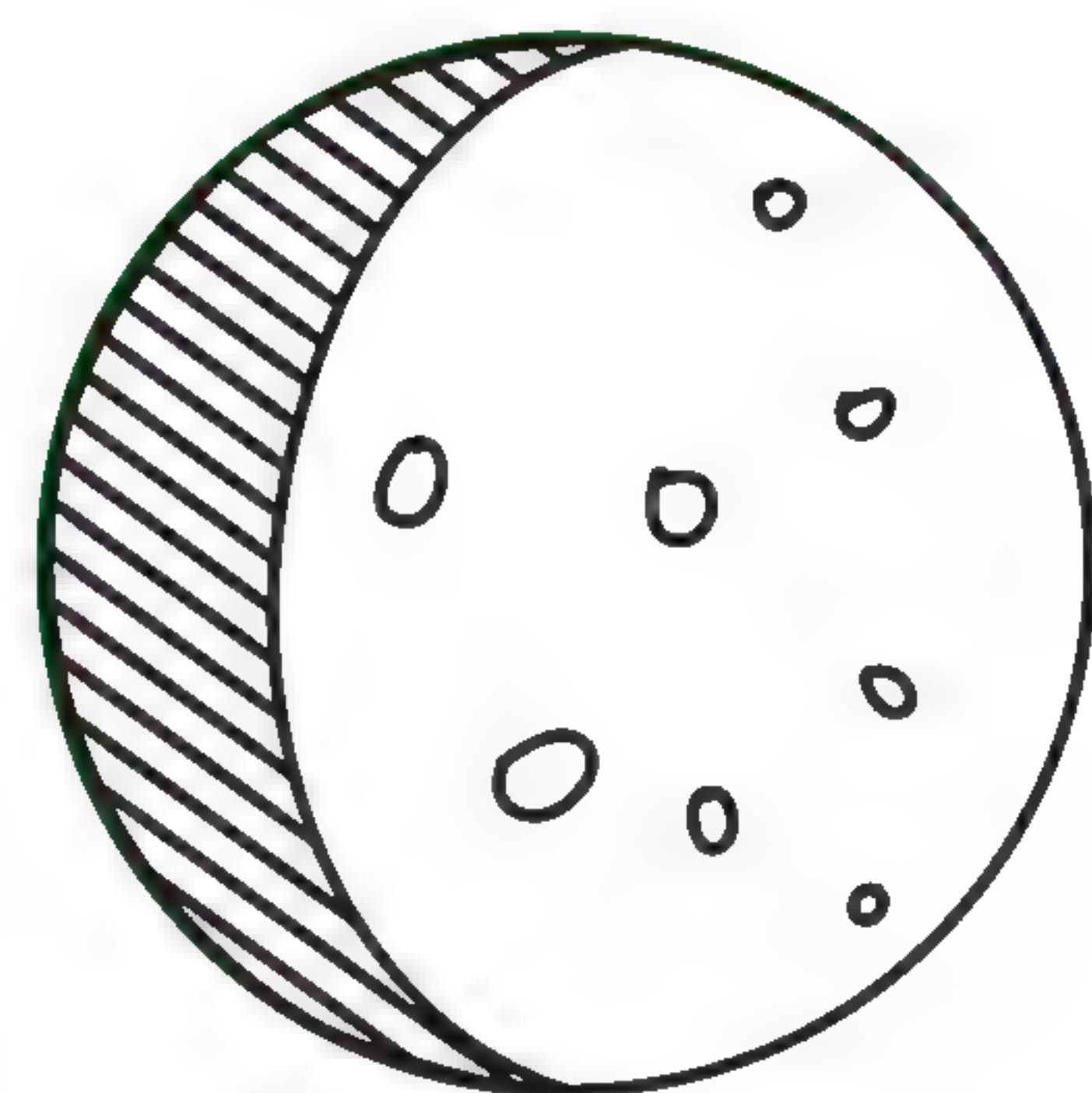
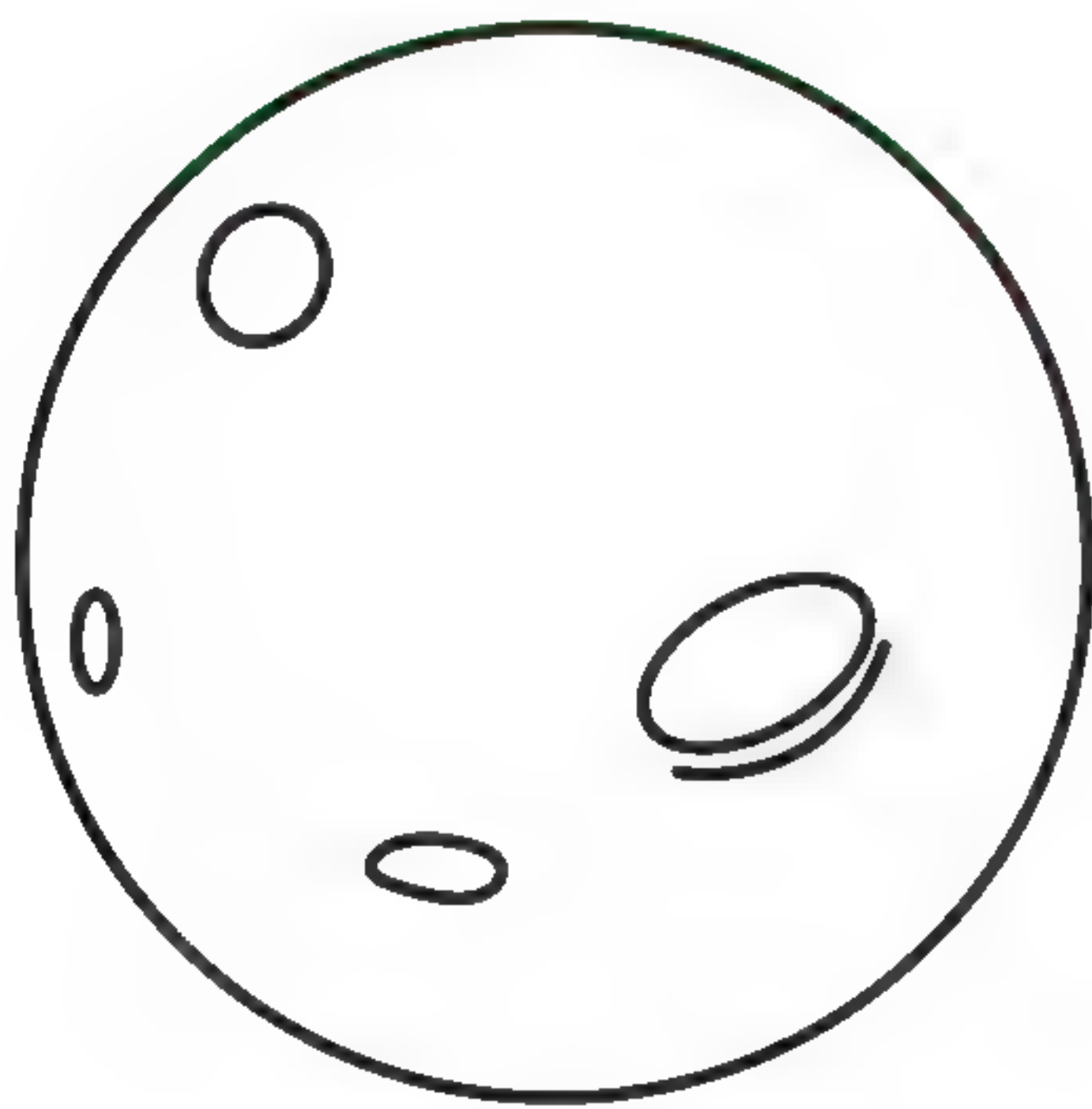
In the box are the names of the four phases of the moon. Use them to write the labels for the four pictures of the moon below.

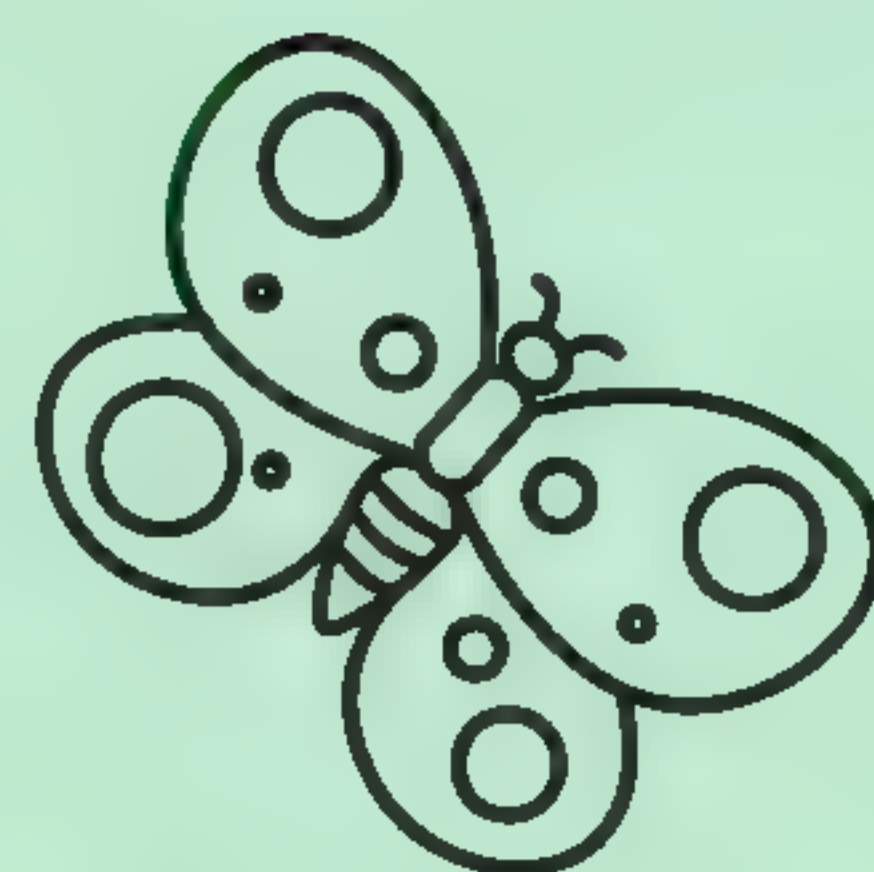
Crescent

Full

Half

New





Certificate

1st
Grade

Congratulations to

.....

for successfully
finishing this book.

GOOD JOB!

You're a star.



Date

.....



Answer Section with Parents' Notes

This book is intended to introduce and support science concepts to first-grade children. The topics are similar to the activities first graders learn.

Contents

Working through this book, your child will gain knowledge about

- living things;
- animal movement;
- plant life;
- the heart;
- bones and muscles;
- teeth;
- healthy eating;
- animals' mouths and feeding;
- catching prey;
- food chains;
- habitats;
- living in water;
- body coverings;
- extinct animals;
- dinosaurs;
- fossils;
- human activity and the environment;
- natural resources;
- metals, plastic, wood, and paper;
- measuring length;
- temperature;
- speed;
- charts and bar graphs;
- solids, liquids, and gases;
- mixing and dissolving;
- the weather;
- the sun and moon.

How to Help Your Child

First graders will not be able to read many of the instructions in this book—that is understood by the author. Therefore, there is an expectation that parents, guardians, or helpers will work closely with children as they progress through the book. Both parents or helpers and children can gain a great deal from working together.

Perhaps the most important thing you can do—both as you go through the workbook and in many everyday situations—is encourage children to be curious about the world around them. Whenever possible, ask them questions about what they see and hear. Ask them questions such as “Why?,” “What if?,” and “What do you think?” Do not be negative about their answers, however silly they may be. There is almost certainly a logic to their response, even if it is not correct. Explore and discuss their ideas with them.

Build your child's confidence with praise and encouragement. Celebrate their success.

Scientists study different parts of nature and the universe.

Use the words in the box to complete the sentences.

Astronomer Biologist



A scientist who studies living things is a biologist.



A scientist who studies the stars is an astronomer.

Write A near the objects that interest an astronomer and B near the ones that interest a biologist.



Comet

A



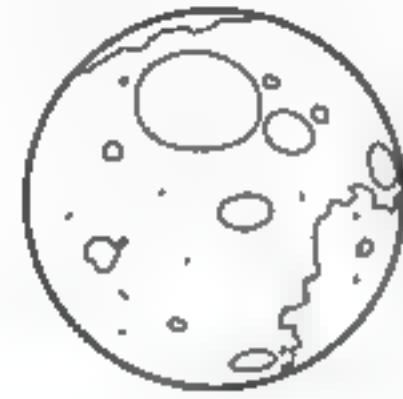
Starfish

B



Plant

B



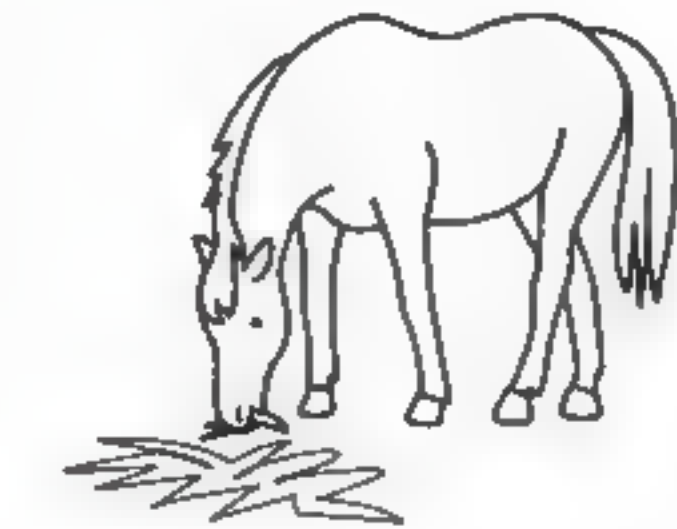
Moon

A

Do scientists work or live in your community? What types of scientists are they? Ask your child: "If you were going to be a scientist, what kind of scientist would you be? What would you study? Why?"

All living things need food, water, and shelter to survive.

Look at the animals below. Draw a line from each animal to the shelter it lives in.

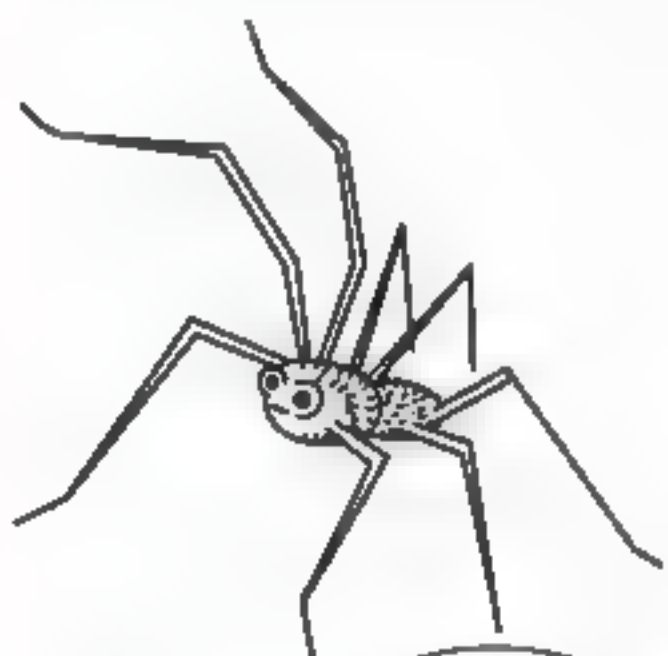


What kind of food does each animal eat? Answers may vary

All animals need food, water, and shelter to survive. Discuss with your child that people are animals, too, and also need food, water, and shelter to survive. With your help, have your child draw the foods that they eat every day, and where they make their shelter.

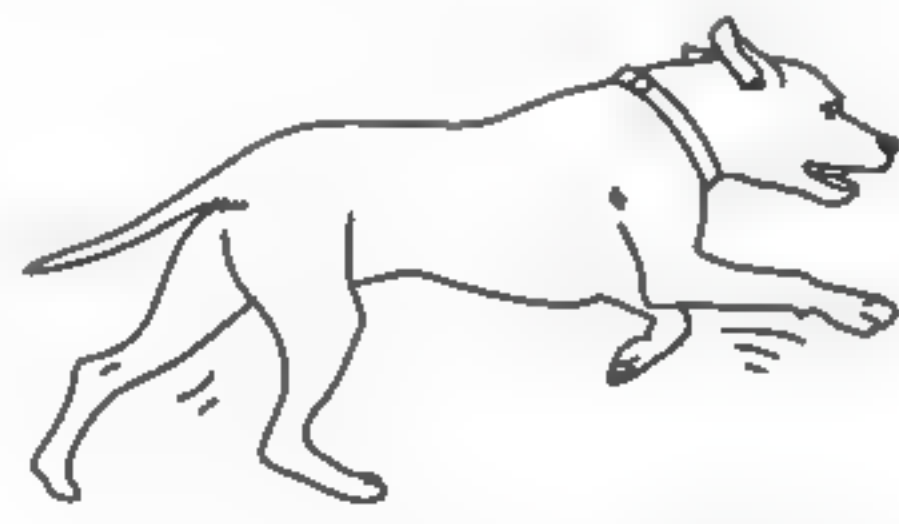
Animals move from place to place to find food, seek shelter, and escape from danger. Some animals, such as rabbits, move very quickly, while others, such as snails, move slowly. Some animals run, while others hop, crawl, swim, or fly.

Look at the words beneath each picture below. Circle the word that describes how the animal in the picture is moving.



Fly

Crawl



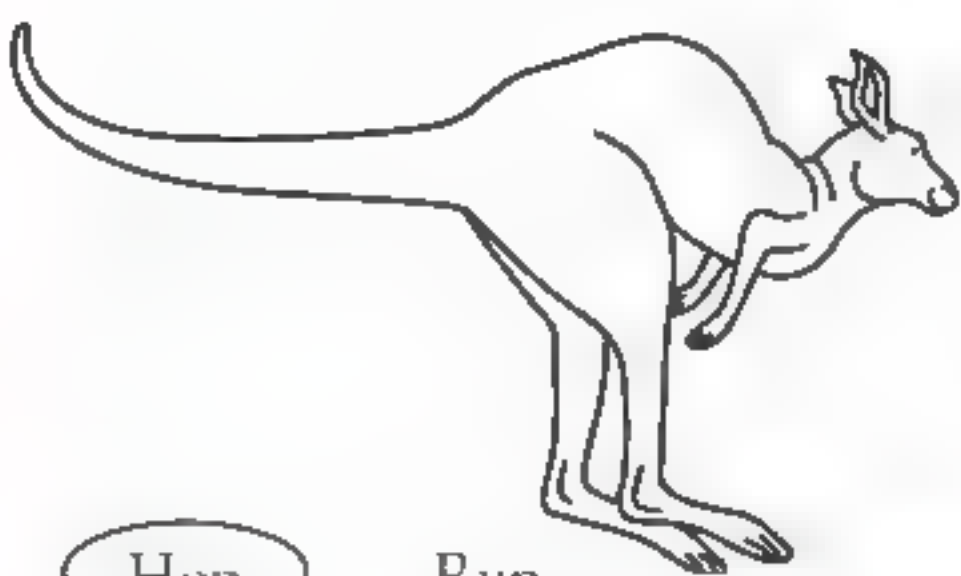
Fly

Run



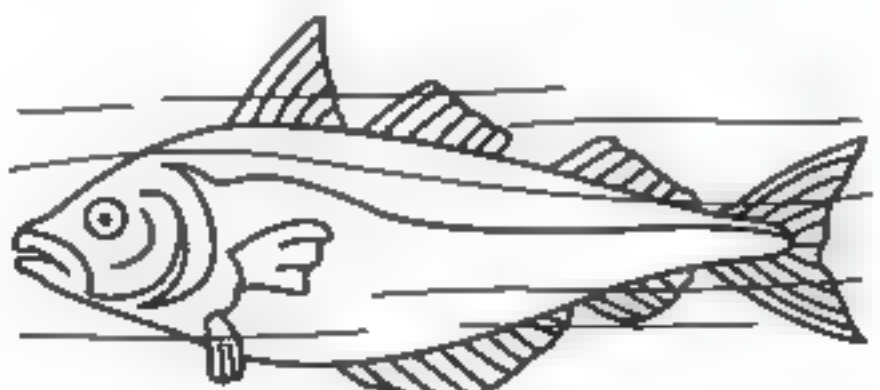
Swim

Fly



Hop

Run



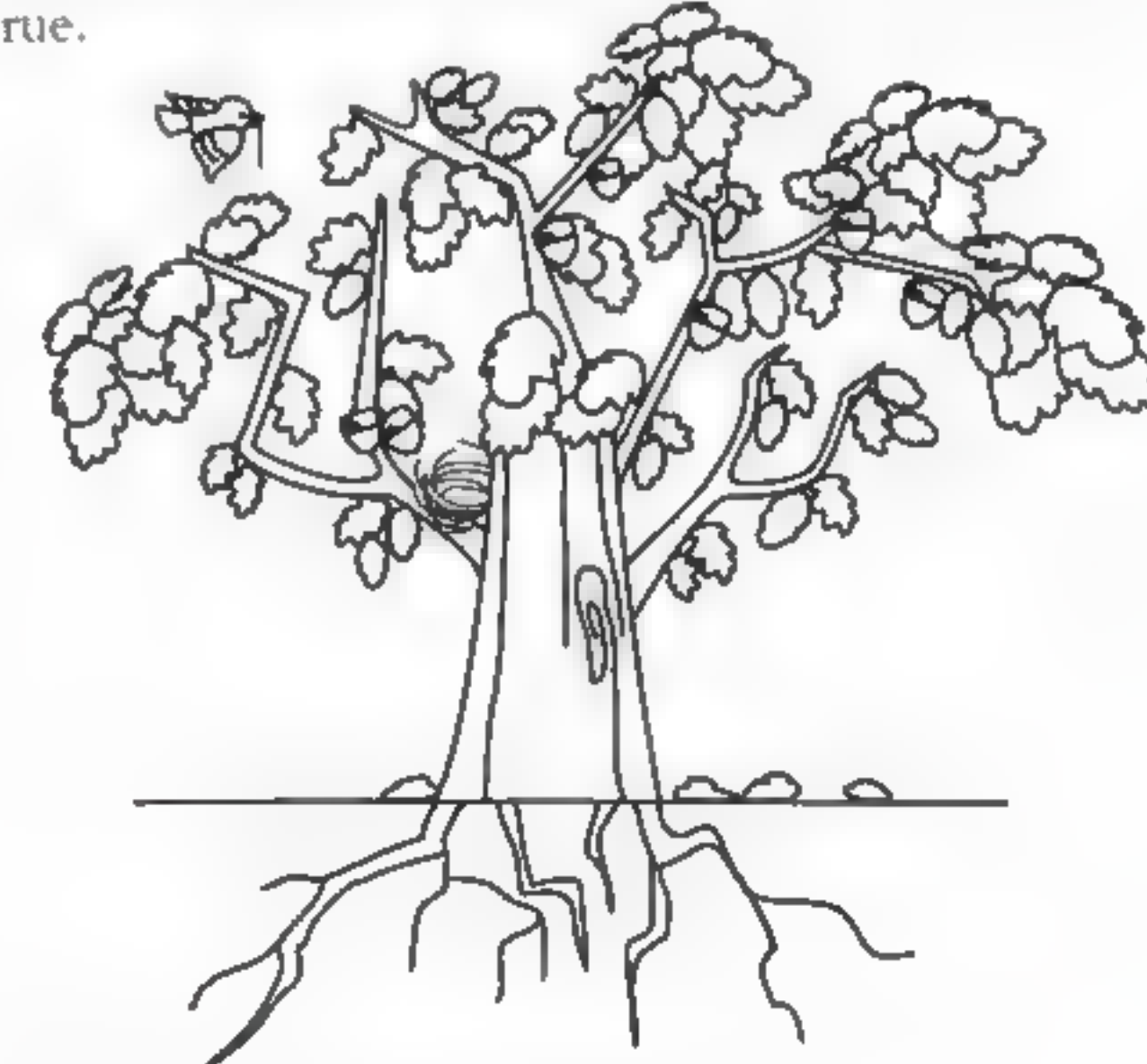
Fly

Swim

Ask your child how they move around every day. Do they walk? Run? Hop? Swim? Fly? If so, when? How? Have them list other animals that walk, run, swim, and fly. Can they think of any other ways animals can move. (Possible answers are snakes slither, worms inch or burrow, etc.)

Plants make their own food inside their leaves by using sunlight, air, and water from the soil. They use this food to grow and make seeds that can grow into new plants.

Read the sentences below. They tell you many facts about an oak tree. Put a check (✓) in the box next to the sentences that are true.



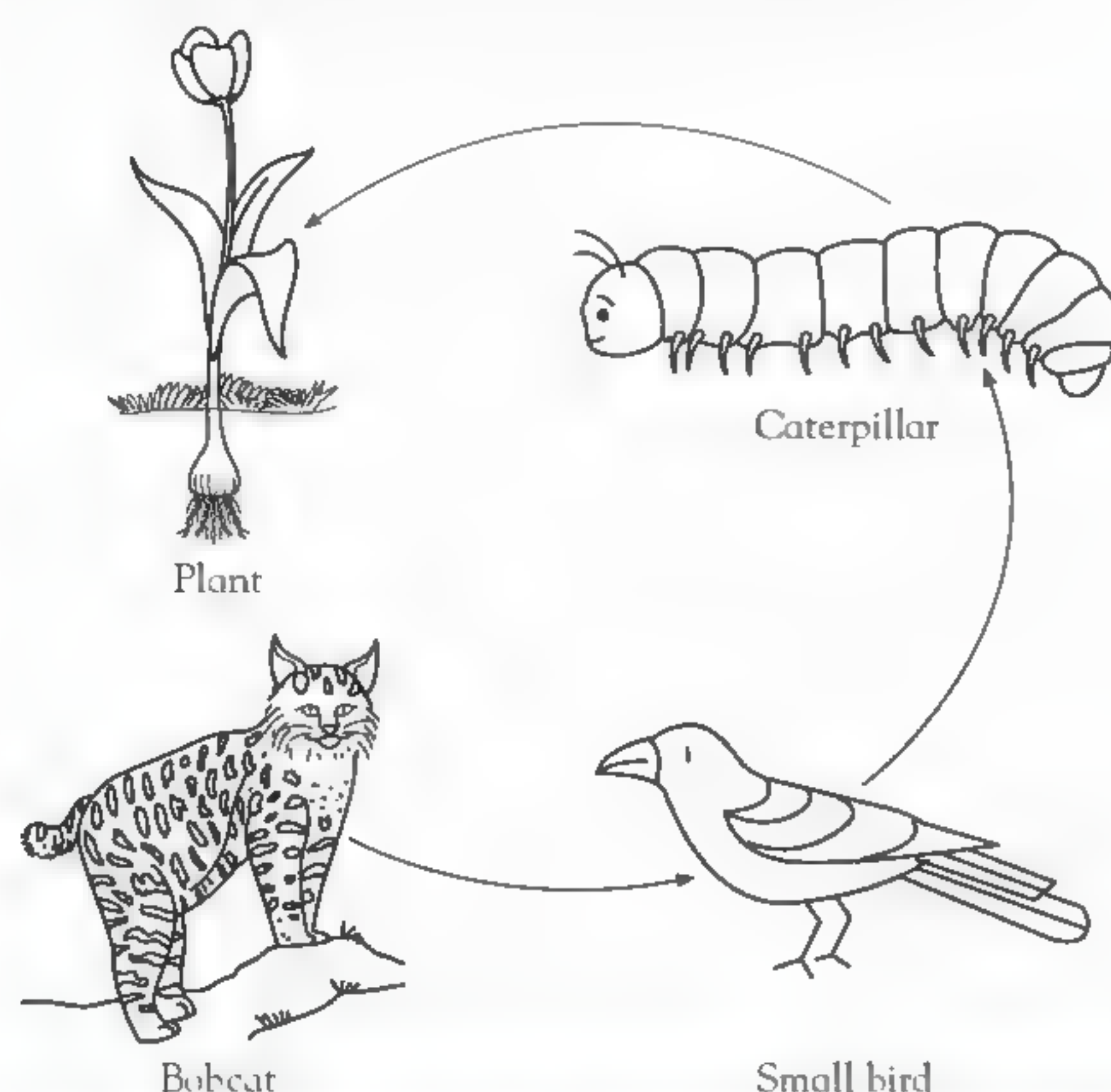
- ☒ The tree makes food inside its leaves.
- ☐ Dogs nest in the branches of the tree.
- ☒ The tree takes in water from the soil through its roots.
- ☒ The tree needs sunlight to make food.
- ☐ The oak tree does not produce any seeds.
- ☒ The seeds an oak tree produces are called acorns.

Discuss with your child that the oak tree is a deciduous tree, meaning it has broad leaves that grow in spring, make food for the tree in summer, and fall off in autumn. Even without its leaves, the oak tree survives winter. During winter, deciduous trees conserve food and energy (like hibernation) until it is time to grow new leaves again.



A food chain shows how living things get food from the plants and animals around them. Food chains often start with a plant, which is eaten by an animal. Then that animal gets eaten by a bigger animal.

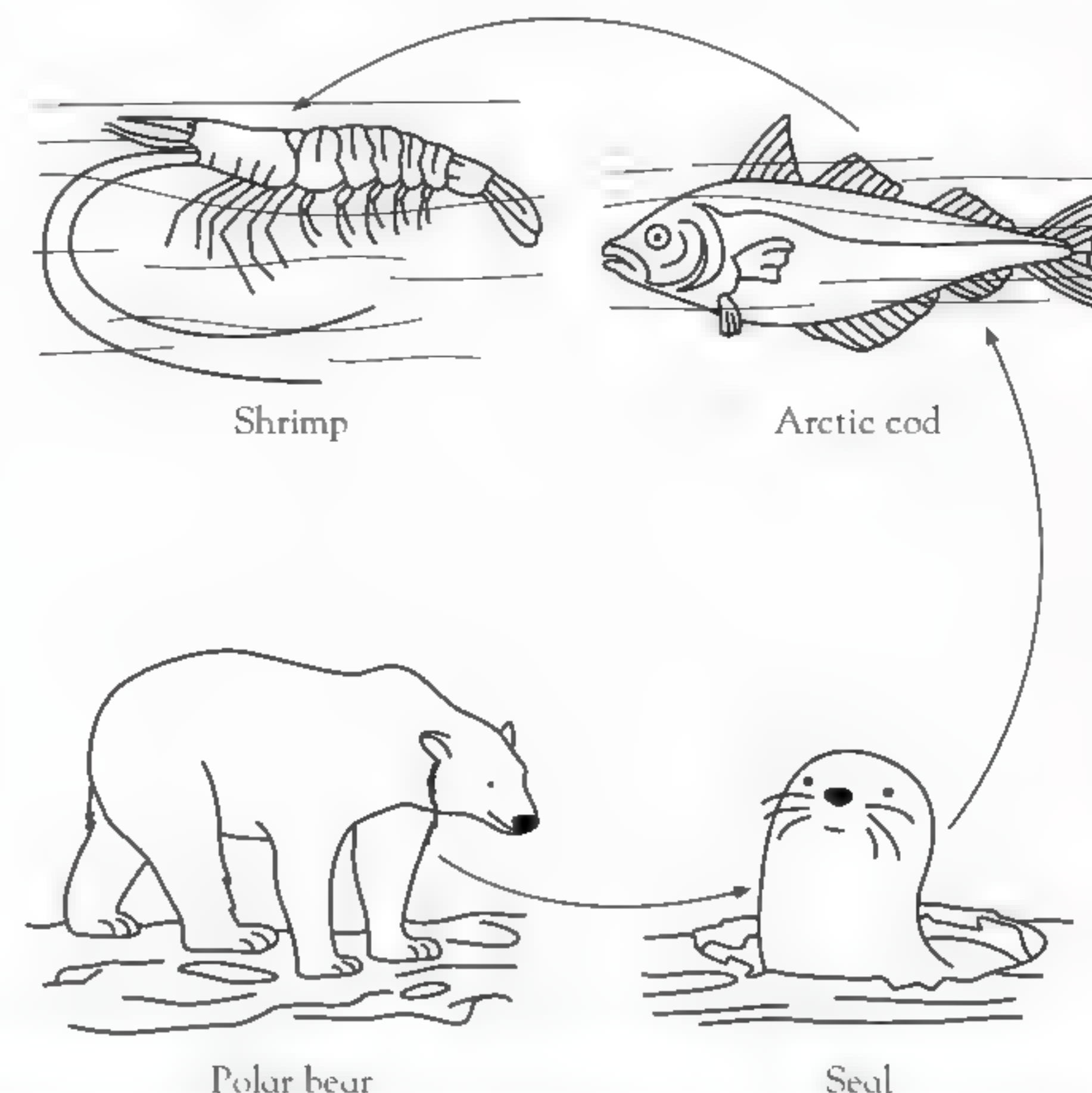
These four living things are part of a forest food chain. Like most food chains, this one begins with a plant. Draw arrows from one animal to the next, showing which animal eats which. **Hint:** Larger animals usually eat smaller animals.



There is one last link on the food chain not mentioned in this activity: decomposers. Discuss with your child that dead plant and animal matter is broken down by the decomposers (fungi and bacteria). This enriches the soil for new plants to grow, starting the chain again.

There are food chains in the ocean as well as on land.

These four animals are part of an ocean food chain that starts with a shrimp. Draw arrows from one animal to the next, showing which animal eats which. **Hint:** Larger animals usually eat smaller animals.

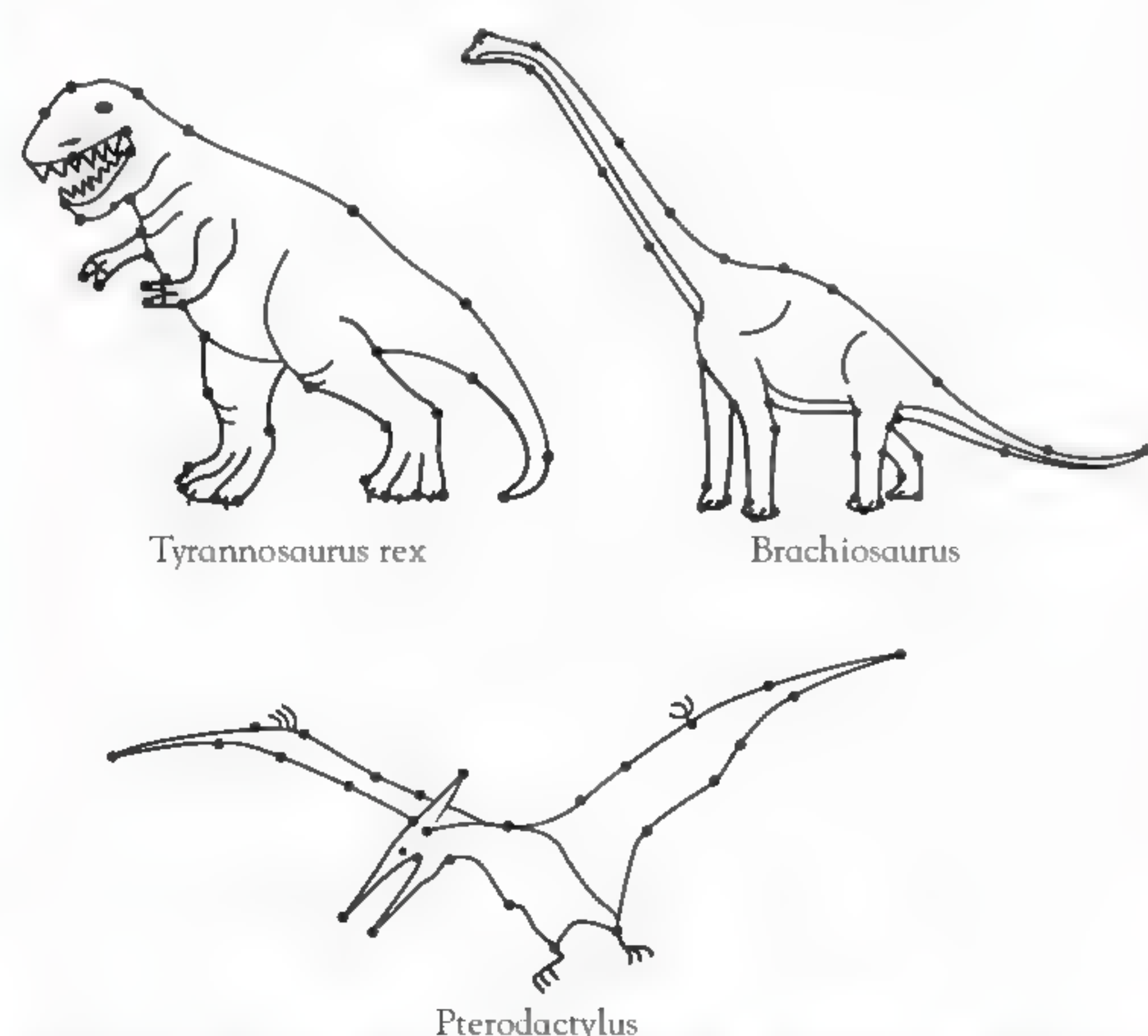


The ocean food chain starts with a small shrimp. However, shrimp feed on something even smaller. In the ocean's top layer—called the sunlit zone—the sun shines into the water and supports the growth of tiny plants known as phytoplankton. Many tiny sea creatures, including shrimp, feed on the phytoplankton.



Dinosaurs and other prehistoric animals lived millions of years ago. Scientists believe there were more than 1,000 different types. Tyrannosaurus rex was a huge fierce meat-eater with lots of sharp teeth. The long-necked Brachiosaurus fed on leaves high up in the trees. Other animals, like Pterodactylus, had wings and could fly.

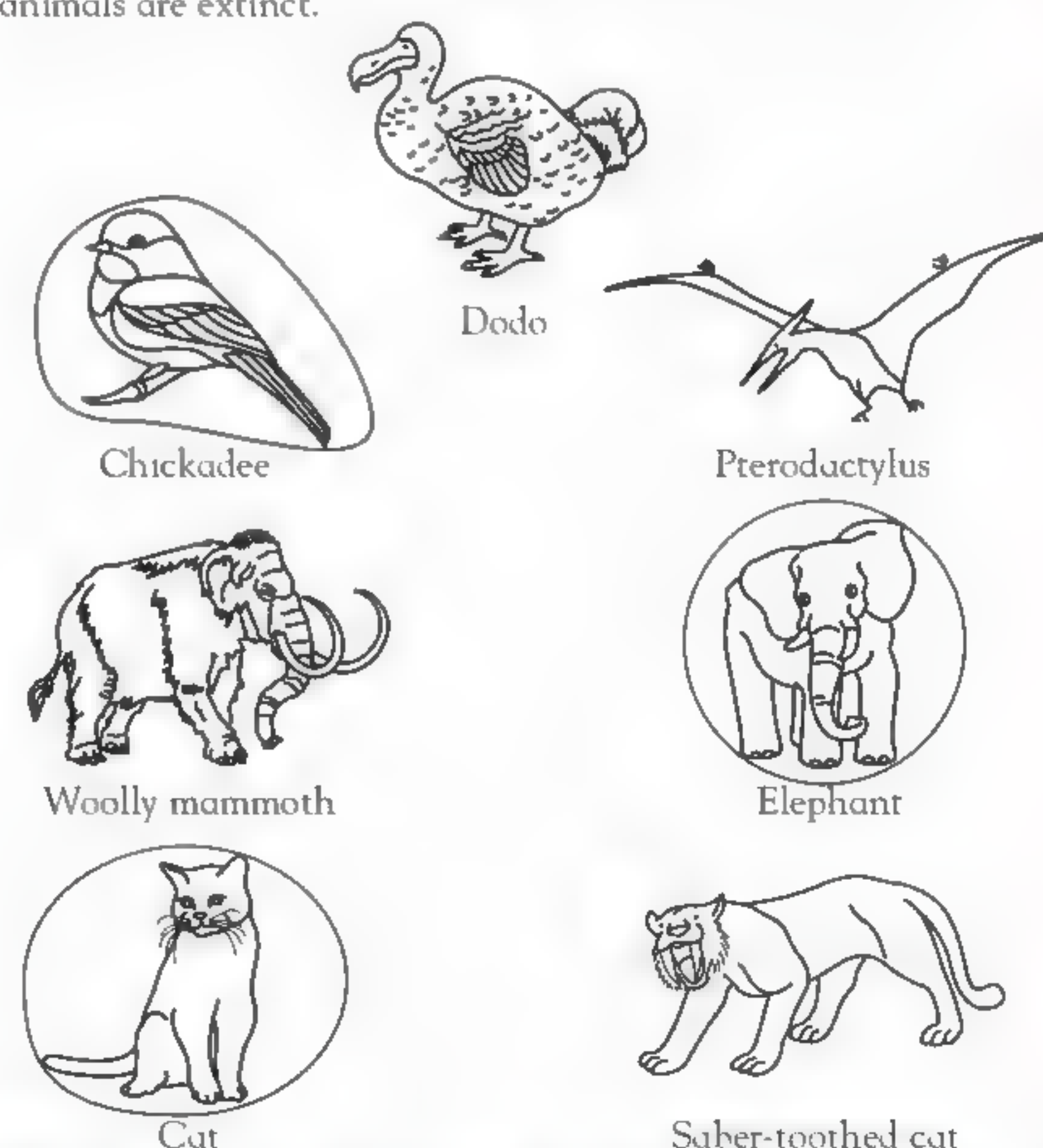
Connect the dots to reveal the prehistoric animals. Then color them.



There were thousands of species of dinosaur and other prehistoric creatures alive millions of years ago. Ask your child which dinosaurs they know of. Do they know Triceratops? Stegosaurus? Apatosaurus? Velociraptor? Together, find images of these dinosaurs online.

Sometimes whole groups of animals die out and no longer appear anywhere on Earth. These animals are called extinct. Many animals alive today are related to animals that are now extinct.

Look at the pictures of animals below. Circle those that are still alive today. Now point to the animals you did not circle. Those animals are extinct.



When animals, such as the dinosaurs, go extinct, they disappear from Earth forever. Ask your child what he or she thinks can make an animal go extinct. (Possible answers are habitat destruction, lack of safe food and water, and increase of predators.)

FACTS Metal is a very useful material and is used to make many different things. Metal objects are usually hard and shiny, and are cold to touch. Some types of metal make a ringing sound when you hit them.

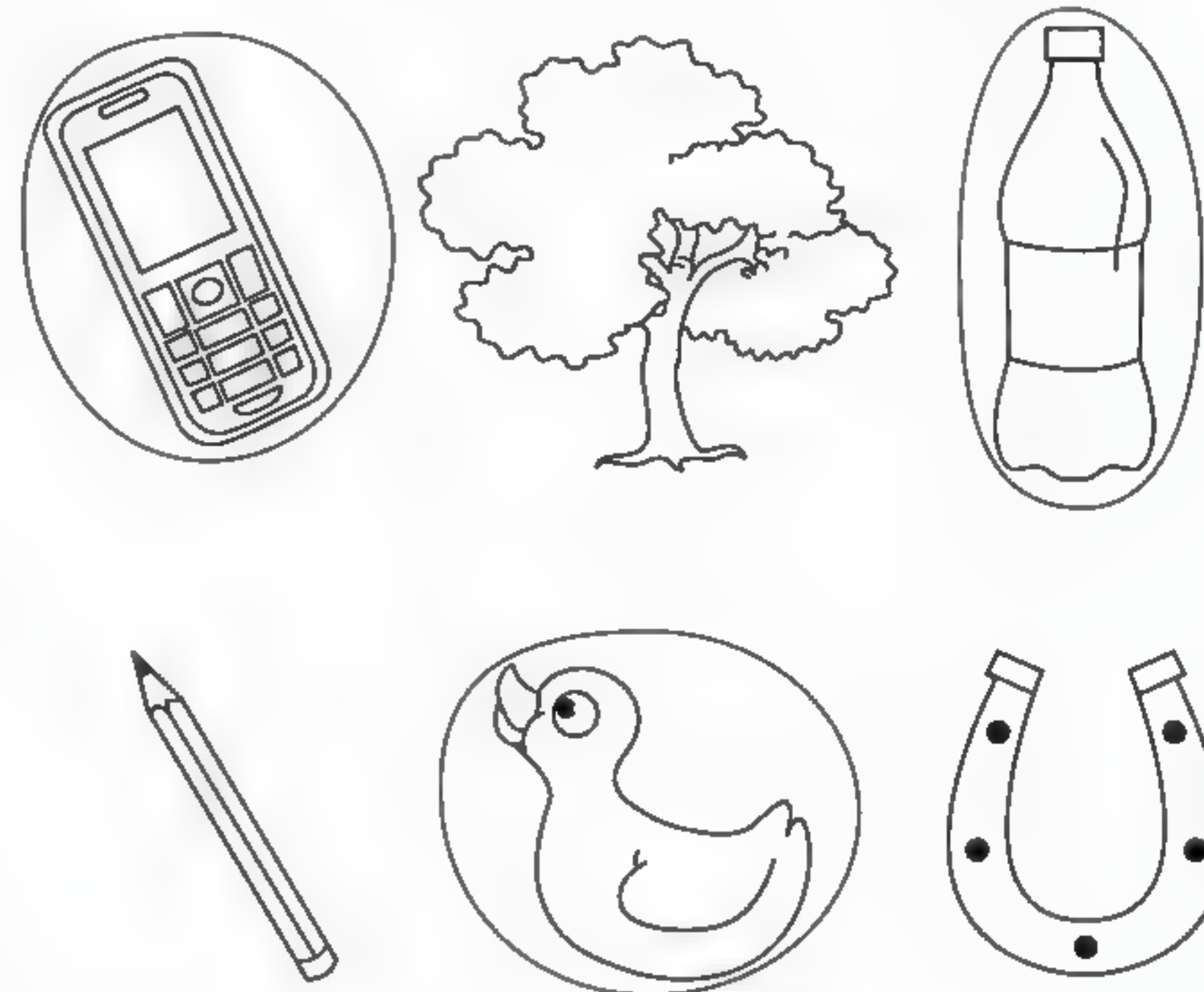
Look at this picture and circle the things made of metal.



Again, having your child find items that they know and use every day brings these concepts to life. Have your child find five to ten metal items from their home or room. Ask them why they think those items are made of metal, instead of another material.

FACTS Many of the things that we use every day are made of plastic. Plastic is not a natural material, like wood or metal. It is made in a factory. It is strong, lightweight, and can be very useful.

Look at the objects below. Circle those that are made of plastic.

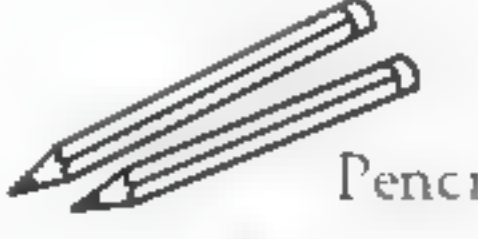






On a separate piece of paper, make a list of all the things in your room that are plastic. How many plastic things did you list?

Plastic is a material that people make. It does not come from nature. But it provides us with lots of useful things. Have your child point out five to ten items from your home that are very useful and made from plastic. Ask them if those items would be as useful if they were made from glass or metal.

FACTS Wood comes from trees. Lots of the things all around you are made of wood. Wooden things float in water, make a dull sound when you tap them, and often smell nice.

Look at the chart. Put a check (✓) in the correct box next to each object shown on the chart.

Object	Wood	Not Wood
 Pencil	<input checked="" type="checkbox"/>	<input type="checkbox"/>
 Bottle	<input type="checkbox"/>	<input checked="" type="checkbox"/>
 Spoon	<input type="checkbox"/>	<input checked="" type="checkbox"/>
 Log	<input checked="" type="checkbox"/>	<input type="checkbox"/>
 Chair	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discuss the properties of wood with your child, and discuss that wood is used to build not only toys and furniture but also houses. Tell them that it is strong and can resist weather and wind, so it makes a good building material. Ask your child what other materials are needed to build a house.

FACTS Paper is also made from wood. You use paper objects every day at home and at school. Books, newspapers, cardboard, notebooks, and tissues are some of the paper things that people use every day.

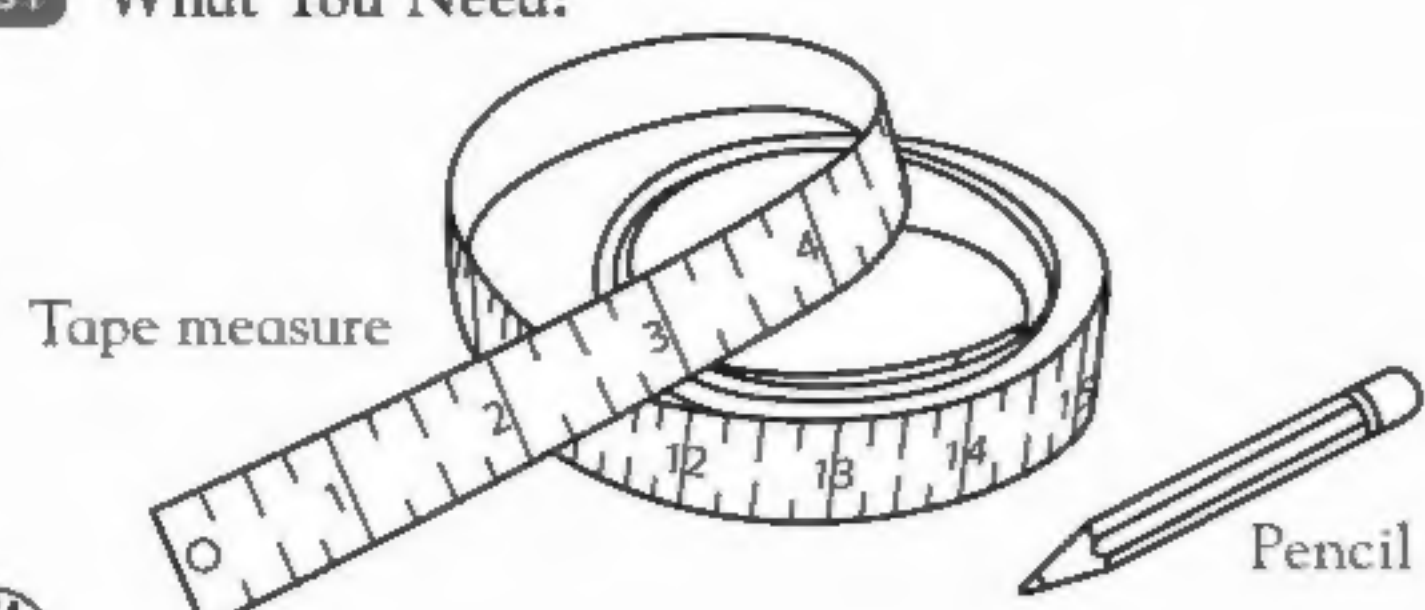
Look at the objects shown below. Circle the objects that are made of paper.



There are many types of paper. Collect different types of paper and discuss them with your child. Have your child point out the differences and similarities. For example, tissue paper and construction paper both crease when folded. But construction paper is heavier and thicker.

Length is a measure of how long something is.

TEST What You Need:



What To Do:

Working with an adult, use the tape measure to find the length of the parts of your body listed on the chart. Record the lengths.

RESULT

Body Part	Length
Index finger	_____ inches
Thumb	_____ inches
Foot	_____ inches
Lower leg	_____ inches
Lower arm	_____ inches

Which two body parts are the longest? Which are the shortest?

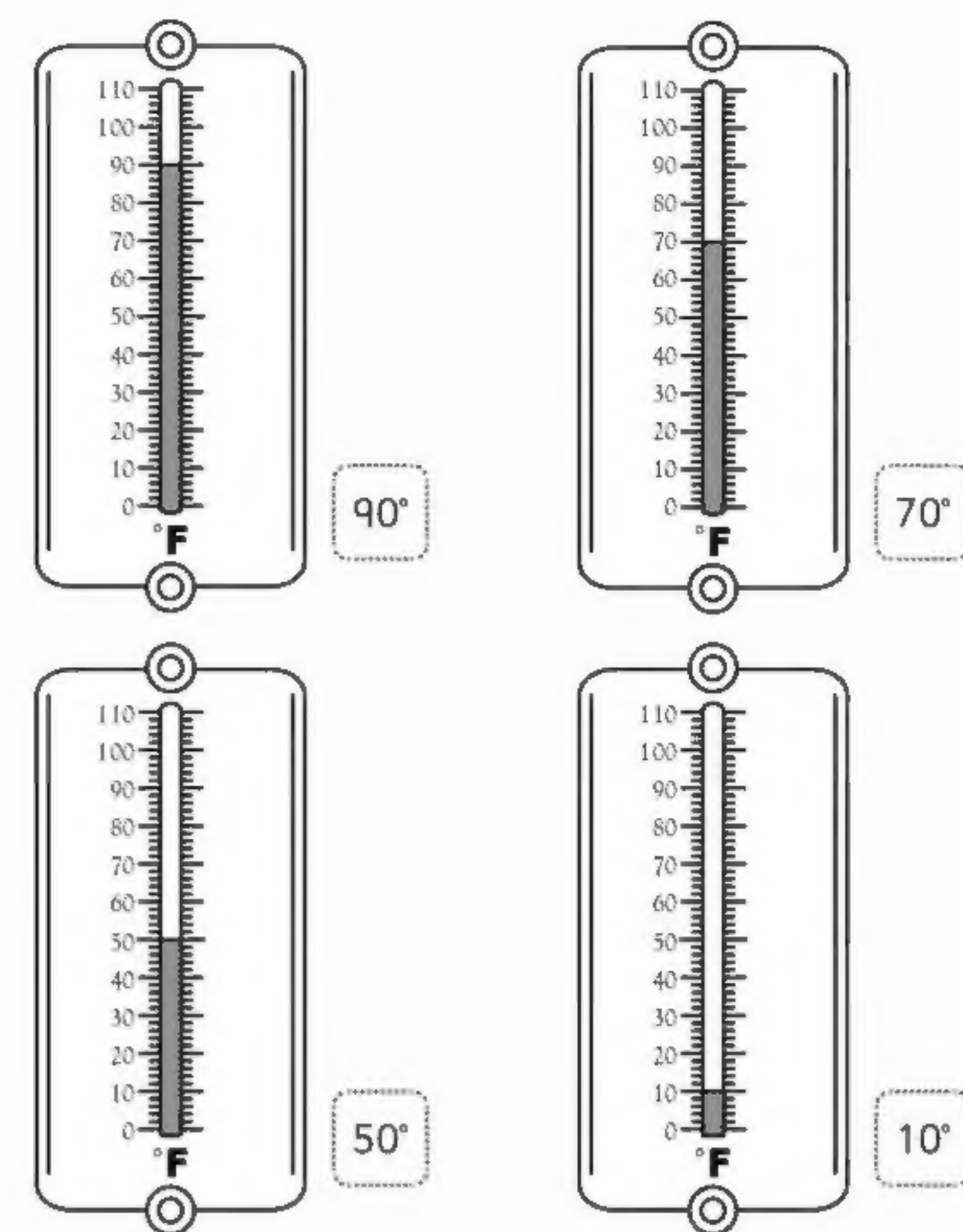
Answers may vary



Discuss with your child how inches can be put into larger groups, such as feet and yards. Explain that there are 12 inches in a foot, and three feet in a yard. Then ask which unit (inch, foot, yard) is best when measuring their fingers, their bed, the front door, and the playground.

Temperature is a measure of how warm or cold something is. A thermometer is an instrument that measures temperature.

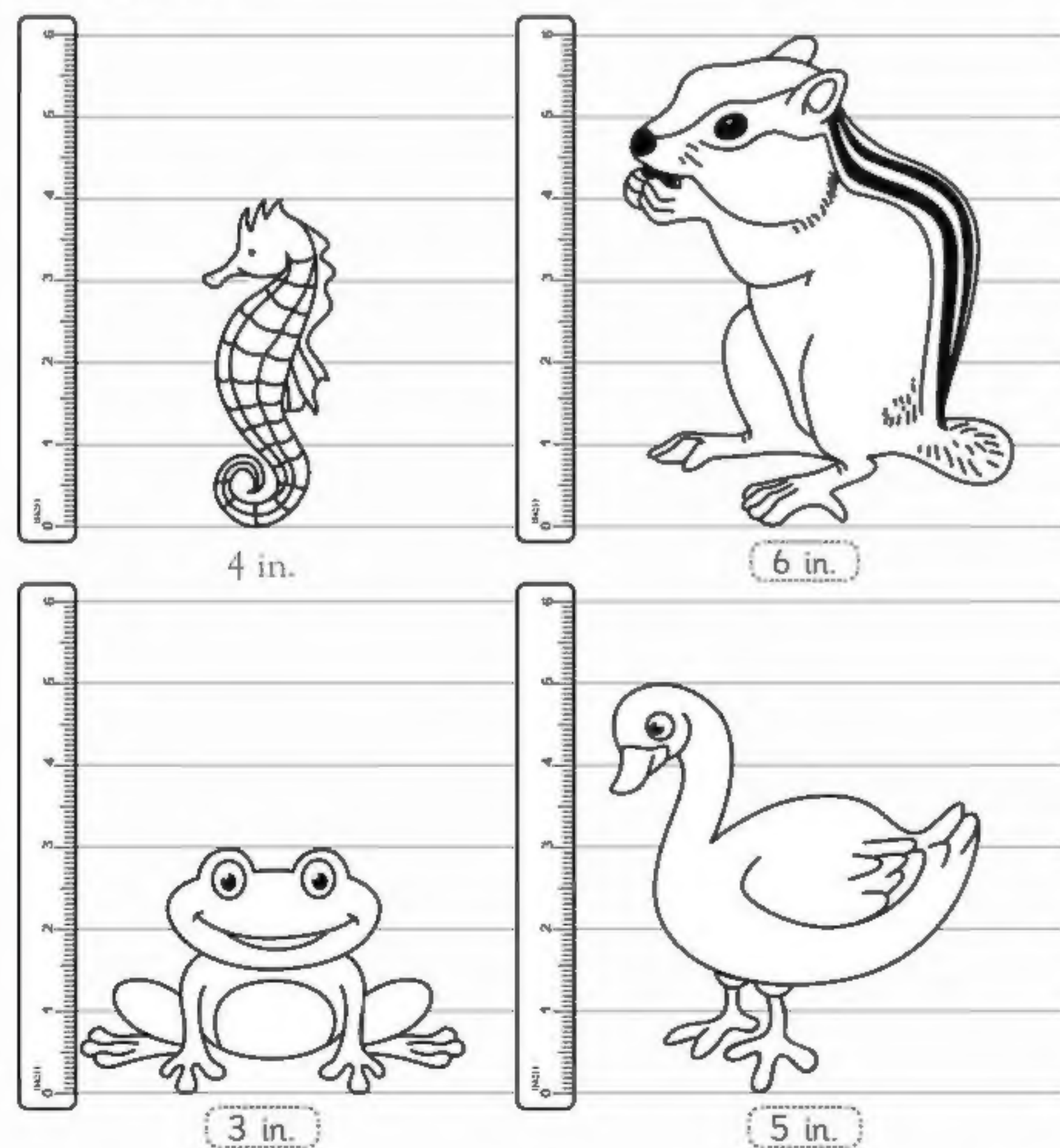
These thermometers measure temperature. Look at each one and write the temperature shown on it in the boxes.



If you have an outdoor thermometer, read it every day with your child, and explain that the mercury goes up when it is warm, and down when it is cold. If possible, put it in different locations each day to show the differences in temperature. You can also check daily temperatures online.

Height is a measure of how high or tall something is.

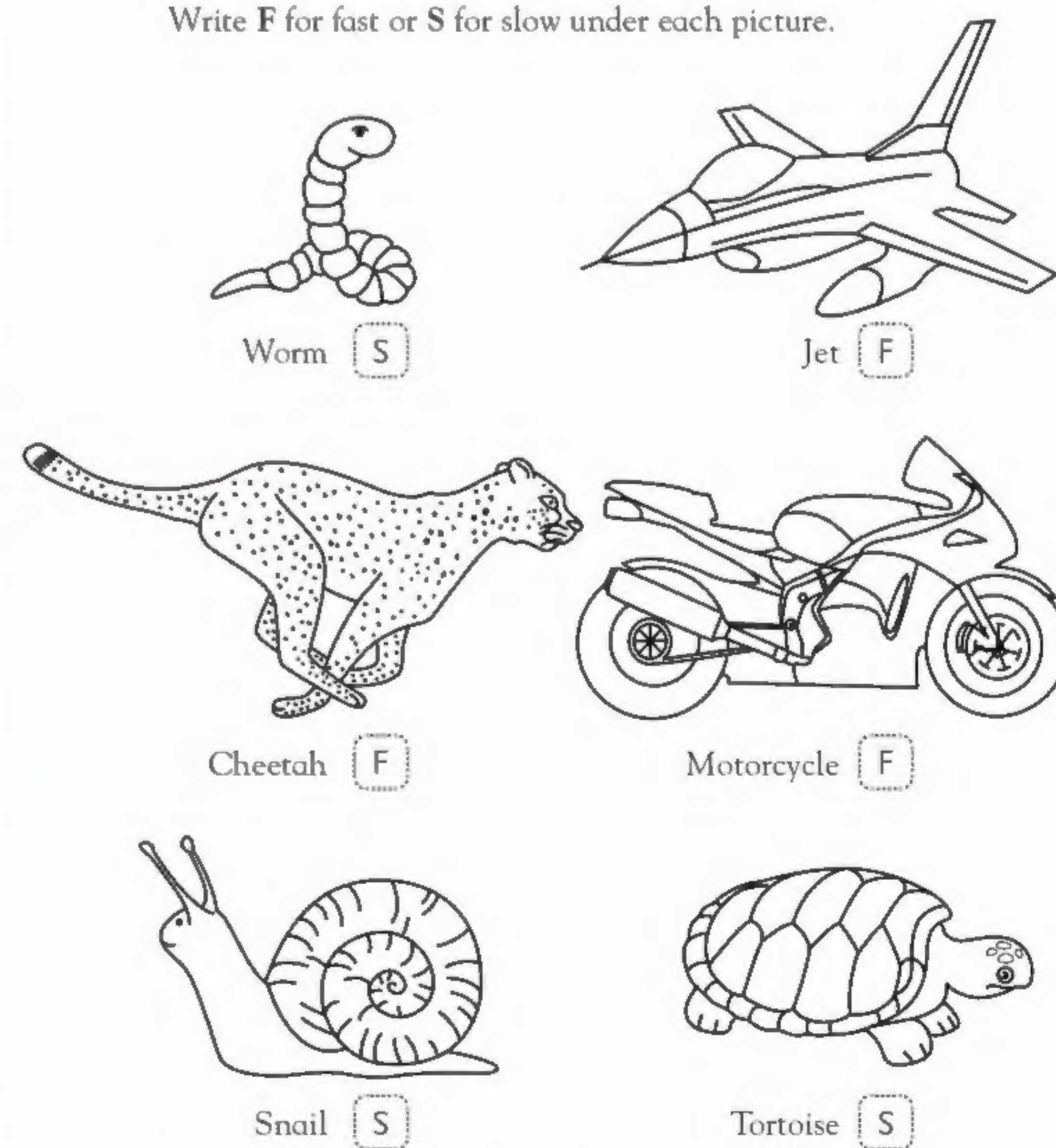
The heights of the four animals shown below are measured using a ruler. The seahorse is 4 in. tall. Write down the height of the other three animals.



Using a tape measure, have your child measure the height of each person in the household. Have each person take off his or her shoes and socks, and stand against the wall. Using a pencil, mark each family member's height on the wall and help your child measure from the mark to the ground.

Speed is a measure of how slow or fast something moves.

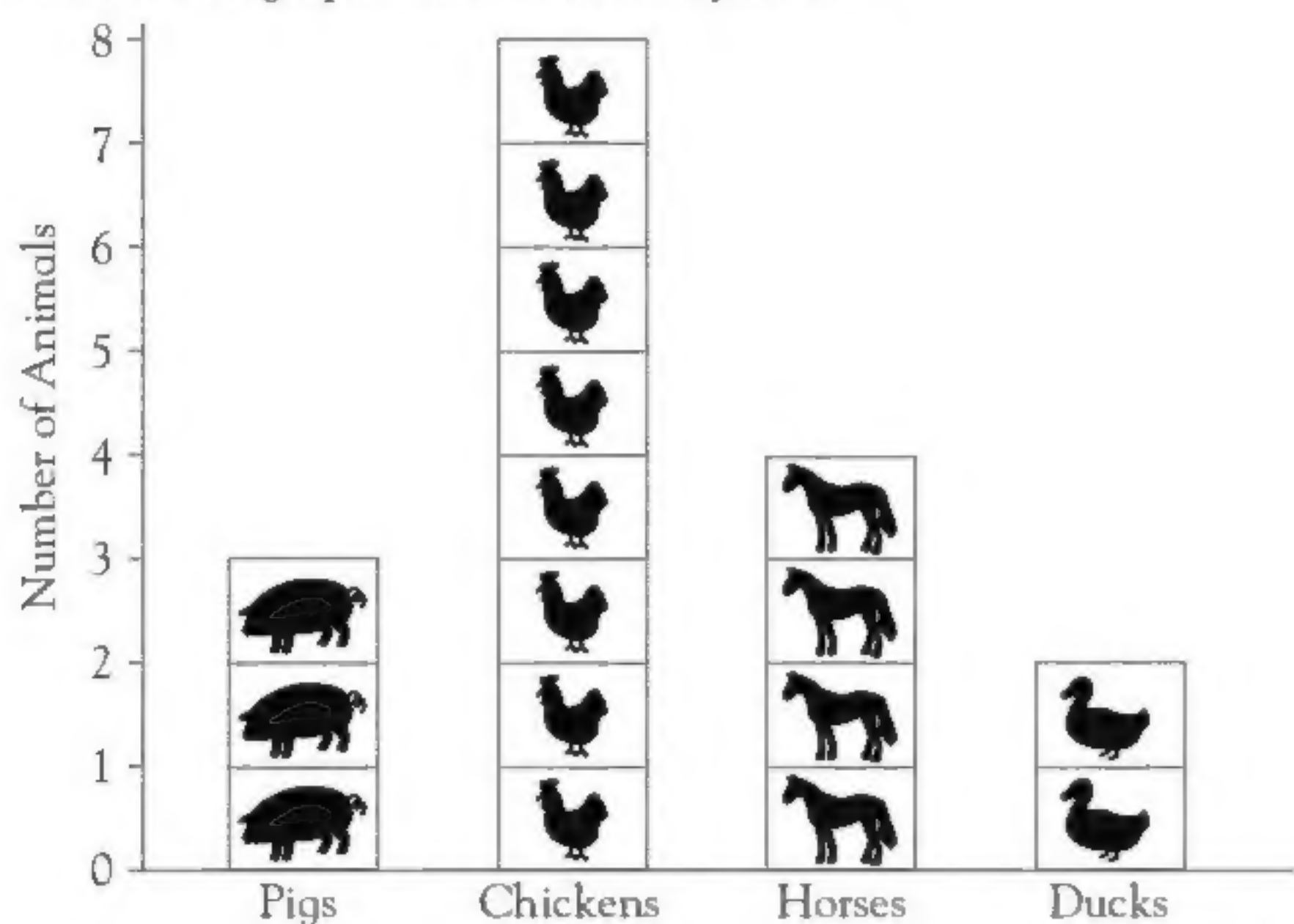
Write **F** for fast or **S** for slow under each picture.



Get your child to pick four of their favorite wheeled toys. Line them up on the floor, and push! See which toy goes the fastest. Repeat two or three times, and record the fastest toy each time. Discuss with your child why that toy might be going fastest. Is it very light? Very heavy?

A bar graph is a way of showing information, so you can compare the facts easily.

This bar graph shows how many animals live on a farm. Look at the graph and answer the questions.



- How many chickens live on the farm?
- How many horses live on the farm?
- How many pigs live on the farm?
- Are there more pigs or more ducks on the farm? Pigs
- How many more chickens than ducks live on the farm?

Have your child create a brand new bar graph. Choose 10 books and help your child categorize them. For example, how many books are about animals? How many are about sports? How many feature people? How many include insects? Help your child record this information on a bar graph.

There are 24 hours in every day, and 60 minutes in each hour.

How do you spend the hours and minutes in your day? Write your name at the top of the chart.



For one day, ask your mom, dad, or other adult to time how long it takes you to do the activities shown on the chart below. Ask the person timing you to write on the chart the number of hours or minutes you spent on each activity.

My Day: _____	
Activities	Time
Eat breakfast	
Brush teeth	
Play	
Eat lunch	
Eat dinner	
Watch television	
Read	
Brush teeth/Get ready for bed	

Discuss with your child that sleep is very important for learning. They cannot learn well if they have not had enough sleep the night before. A good night's sleep helps them remember what they have learned. Add "Sleep" to the chart on page 37, and have your child fill in how long they sleep.

Matter is the name used to describe all the different materials that make up the universe. All matter exists as a solid, liquid, or gas. A solid keeps its shape. A liquid flows, and takes the shape of the container it is in. A gas will also flow and expand and fill the container that it is in.

Answer the questions on the chart by writing Yes or No under the name of each substance named at the top of the chart. Then answer the questions under the chart.

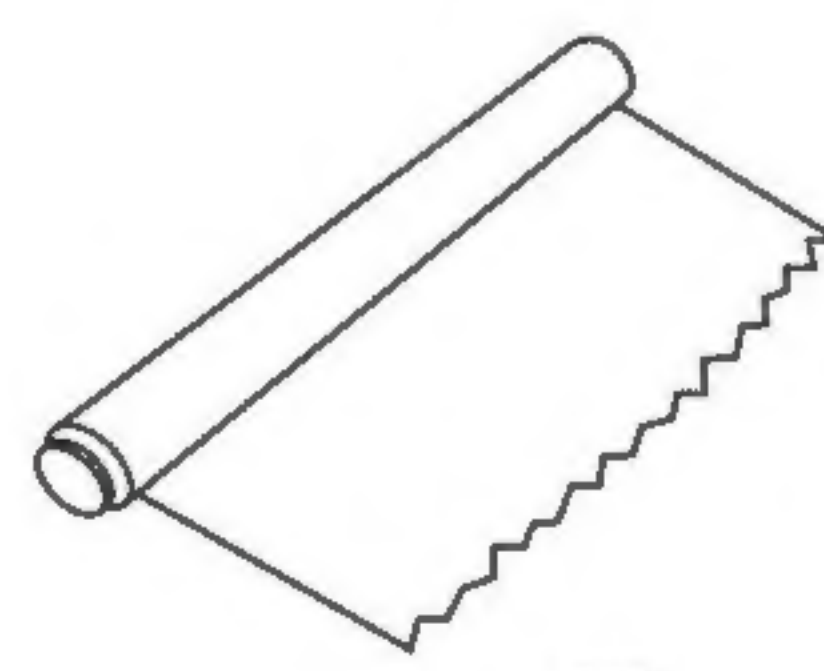
Material	Water	Air	Penny
Will it flow?	Yes	Yes	No
Does it keep its shape?	No	No	Yes
Will it spread to fill a container?	No	Yes	No

- Which material is a solid? Penny
- Which material is a liquid? Water
- Which material is a gas? Air

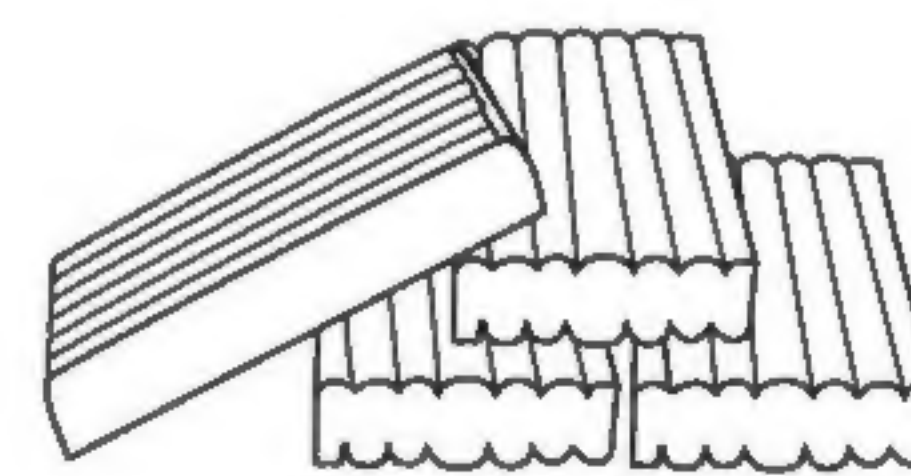
Have your child list their five favorite treats. Ask them if those treats are a solid, liquid, or gas. Discuss the crossover between states: chocolate is a solid that melts into a liquid, as are ice cream and ice pops. Discuss that those liquids will then become solid again when put back in the freezer.

Solids do not change shape by themselves. They will not pour or spread out to fill a space.

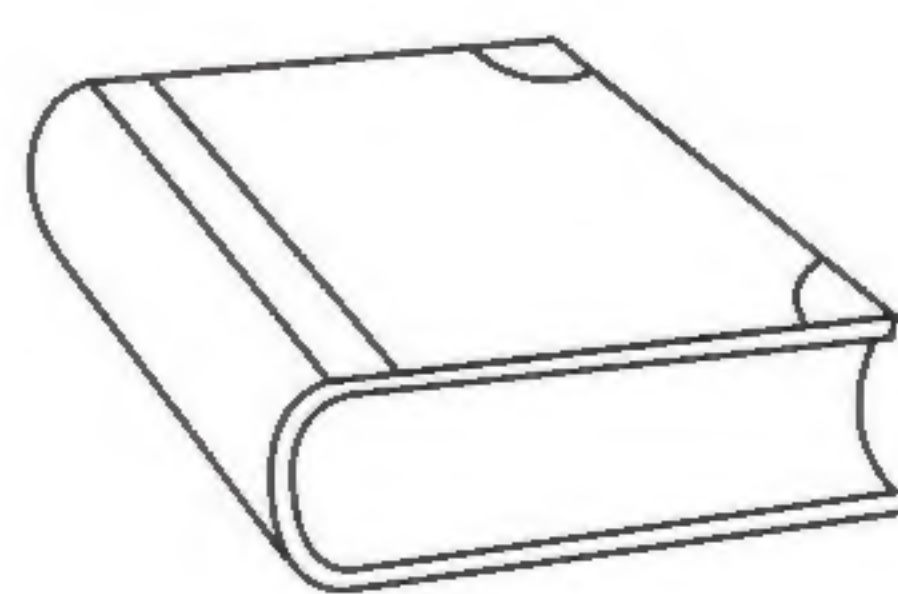
Look at the materials shown below. Put a check (✓) in the box next to the name of each one if you think it is a solid.



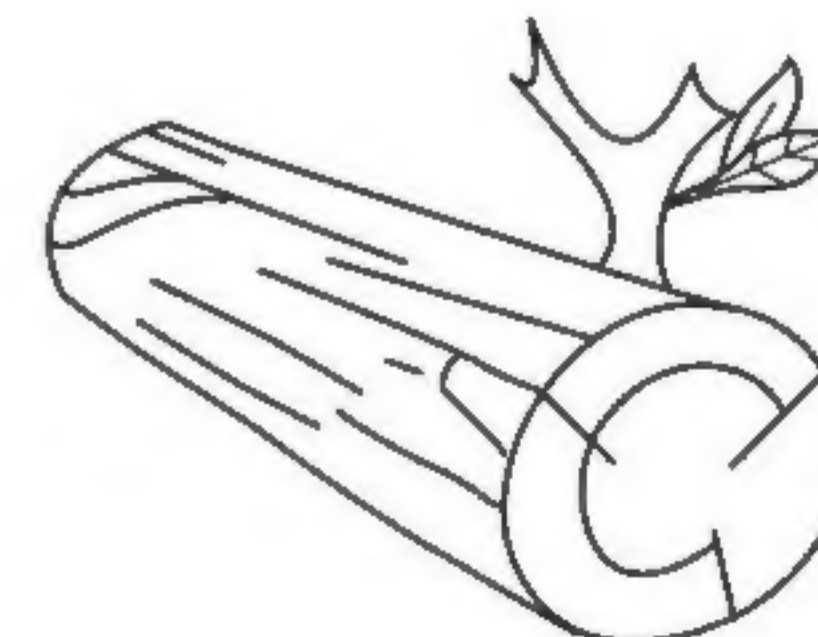
Aluminum foil ☒



Modeling clay ☒



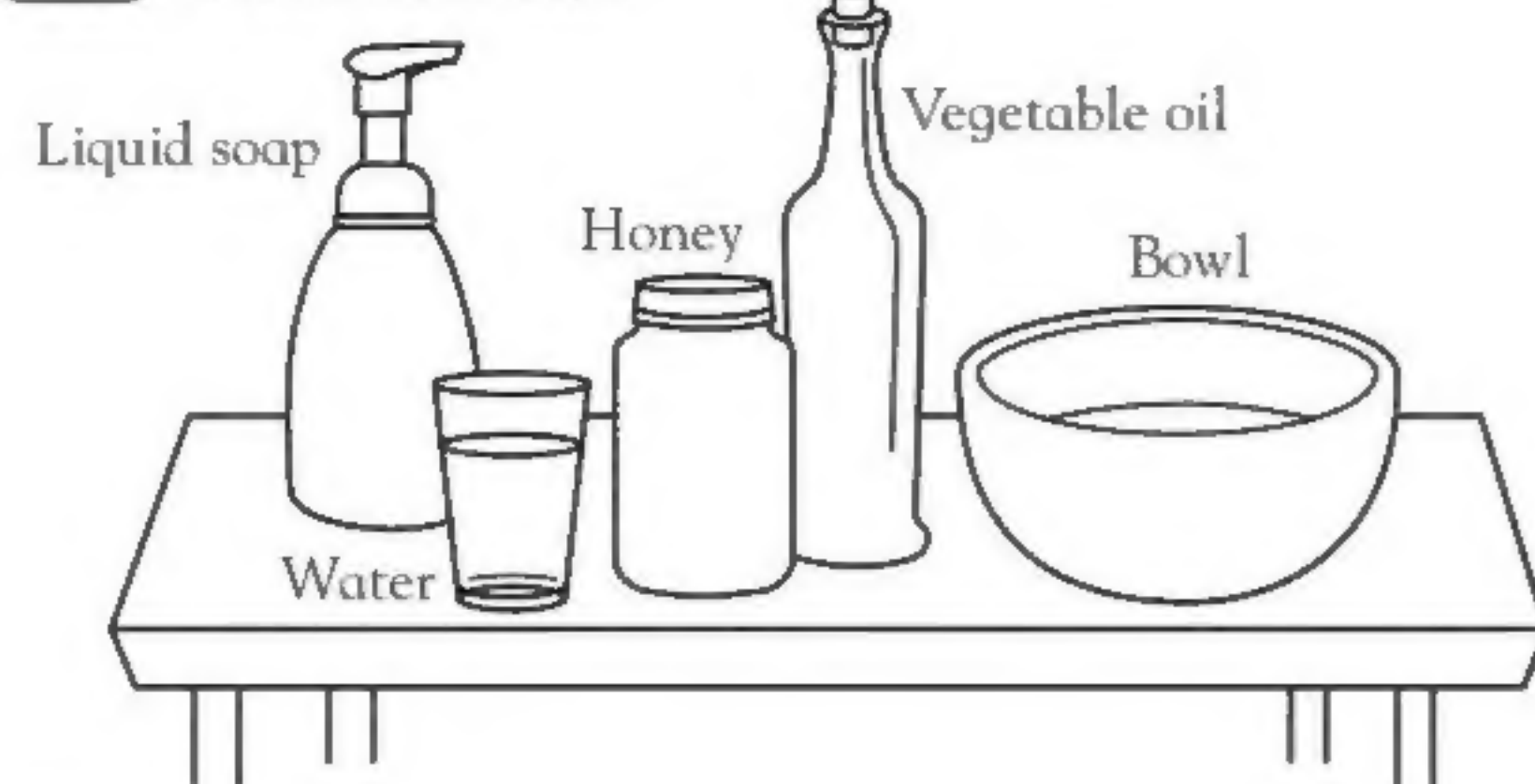
Book ☒



Wood ☒

Continue the exercise on page 39, and have your child walk around the house naming the solids that they see. Have them record the solids they see on a chart.

Liquids will flow, and take the shape of whatever container they are in. They can also be poured. Some liquids flow faster than others.

TEST What You Need:**What To Do:**

1. Pour a small amount of the liquid soap into the bowl. How quickly did the soap pour? Now pour a small amount of water. How quickly did that pour? Repeat with the honey and vegetable oil.
2. Make note of which liquid poured fastest and which poured slowest.

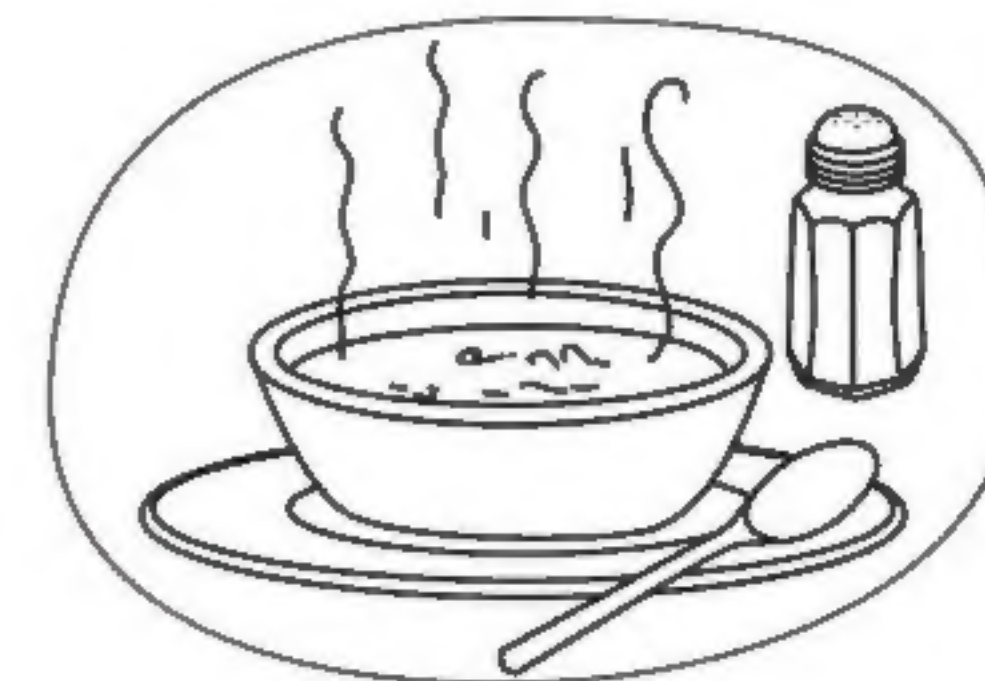
RESULT

Liquid that pours fastest Water
 Liquid that pours slowest Honey

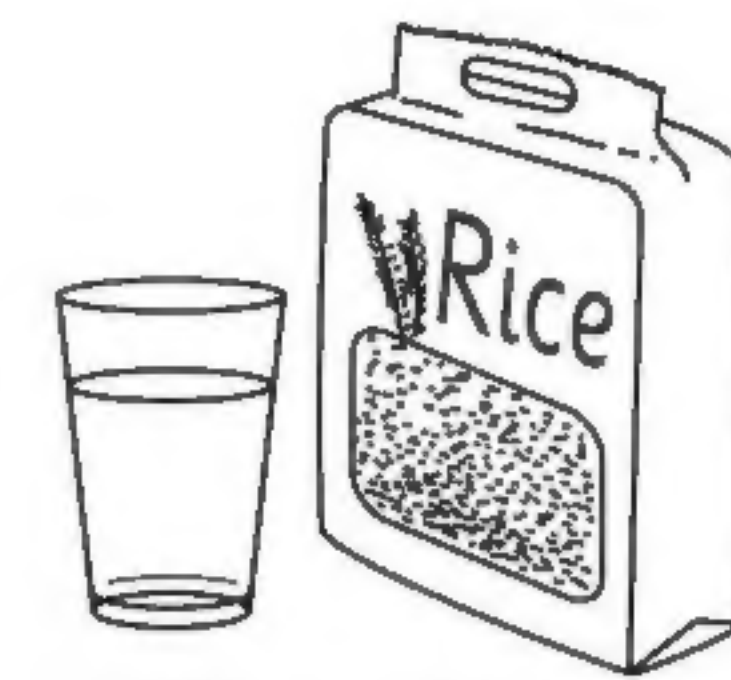
Pour some water into a pitcher. Show your child that the water is now in the shape of the pitcher. Then pour the water into a bowl. What shape is the water now? Pour the water into a glass and then into a rectangular container. Reiterate that liquid changes its shape according to the vessel.

Some solids mix into liquids so that the solid seems to disappear. The solid dissolves into the liquid. This happens when you mix sugar into water. You can no longer see the sugar, but you know it is there because the water tastes sweet. Salt is another solid that dissolves in liquids. But some solids, such as pebbles or rice, will not dissolve.

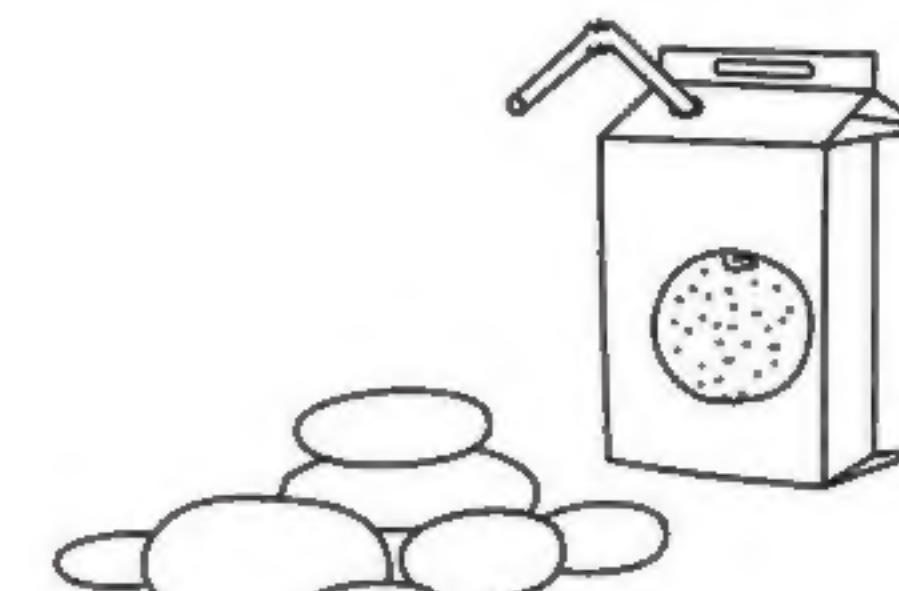
Look at the pictures below. Each one shows a solid next to a liquid. Circle the two solid and liquid pairs where the solid will dissolve into the liquid.



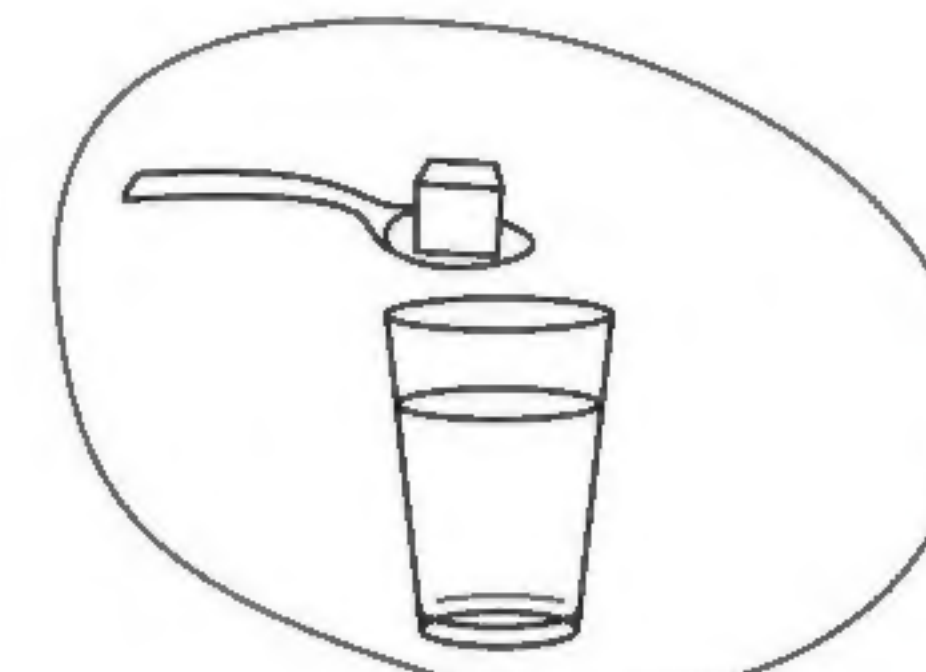
Soup and salt



Water and rice



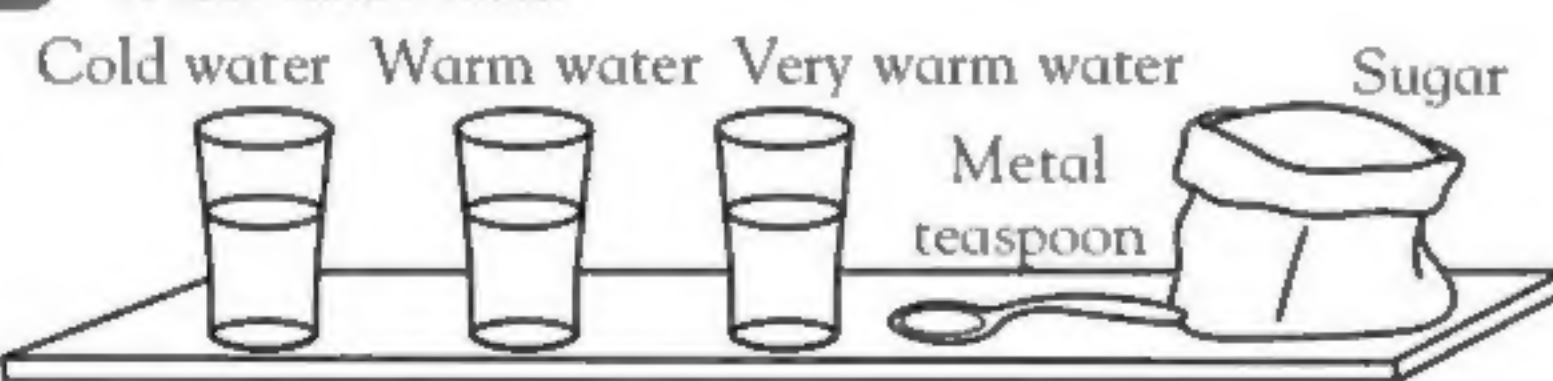
Juice and pebbles



Water and sugar

Have your child identify three solids that they would like to try to dissolve in water (such as sand, toys, pasta, cocoa powder, flour, dirt, etc.). One at a time, put the solid into a bowl of water and stir. Record the results on a chart.

How hot or cold a liquid is can make a difference to how quickly a solid will dissolve in it.

TEST What You Need:**What To Do:**

1. Take three glasses. Fill one halfway with cold water, another with warm water, and the third with very warm water.
2. Stir a teaspoon of the sugar into the cold water, counting how many times you have to stir until the sugar has completely dissolved. Make a note of the number of stirs on the chart.
3. Repeat Step 2, stirring a teaspoon of sugar into the warm water. Again count and note the number of stirs it takes for the sugar to completely dissolve. Repeat again, stirring sugar into the very warm water.

RESULT Look at your results on the chart and answer the question.

Water at Different Temperatures	Number of Stirs
Cold water	
Warm water	
Very warm water	

Does the sugar dissolve faster as the water gets hotter? Yes

Reward your little scientist by repeating this activity using powdered hot cocoa or soup or other dissolvable treat. Discuss at which temperature the items dissolve best, and then help your child prepare their treat.

Air is a mixture of invisible gases. You cannot see it, but you can feel it blowing on a windy day. Just like solids and liquids, gases have weight, and some gases are heavier than others. A balloon filled with a light gas will float up higher than a balloon filled with a heavier gas.

Look at the picture below. The balloon with the swirly dots is filled with a very light gas. The stripy balloon is filled with a heavier gas. The balloon with the clouds on it is filled with the heaviest gas.



1. Point to the balloon with the heaviest gas.

2. Point to the balloon with the lightest gas.

3. Is the stripy balloon heavier or lighter than the balloon with the swirly dots?

Heavier

The concept of gas can be abstract for a first grader. Blowing up balloons is a helpful way of showing your child how gas (the air from your lungs) will fill a balloon, not just pool at the bottom, the way a liquid would (as with water balloons). Bubbles are also a good example.

